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Standard evaluations of NF-1 tumor and treatment response are inadequate and current therapies are ineffective. We conducted studies using MRI, MRS, and PET in 28 NF-1 patients with newly-diagnosed brain tumors and 7 with progressive tumors. Preliminary results show MRS and PET profiles similar to non-NF1 tumors. Predictive factors have not been identified. However, thalamic hypometabolism and hypoperfusion is significant in these patients. Neuroimaging data requires re-analysis in 9 months after all scheduled studies are completed.

To evaluate new treatments, we conducted trials of cis-retinoic acid, interferon, or VP16 in patient with optic pathway tumors (Stratum 1 n=13)) and interferon or VP16 in plexiform neurofibromas (Stratum 2, n=57). On Stratum 1, one patient had a minor response, 5 had stable disease, 4 had tumor growth therapy, and one had tumor growth after therapy. On Stratum 2, 10 had clinical improvement and only 4/57 had neurofibroma growth after therapyTreatment trial results suggest that optic pathway tumors are not likely to be more responsive to the selected study agents than to conventional therapy. However, CRA and IFN therapy may delay or prevent further growth of PN. If this finding is substantiated, it may have a major impact on NF-1 therapeutic options.

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Peter C. Phillips, M.D.	Oct 96
PI - Signature	Date

Progress Report:

Early Detection of Neurofibromatosis Type-1 Brain Tumor Growth and Treatment Response by Magnetic Resonance Imaging, Proton Magnetic Resonance Spectroscopy, and Positron Emission Tomography in a Trial of Novel Antitumor Drugs

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Progress Report: Early Detection of Neurofibromatosis Type-1 Brain Tumor Growth and Treatment Response by Magnetic Resonance Imaging, Proton Magnetic Resonance Spectroscopy, and Positron Emission Tomography in a Trial of Novel Antitumor Drugs

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Cooperative Agreement: DAMD 17-93-V-3016

INTRODUCTION

Patients with Neurofibromatosis Type 1 (NF1) are at high risk for the development of potentially life-threatening intracranial or systemic tumors. 15 to 20% of NF-1 patients have Optic Pathway tumors, 5% have brainstem masses, and despite advances in diagnosis and treatment, these histologically benign tumors often have a clinically malignant outcome. Furthermore, 50% of NF-1 patients will have at least one peripheral plexiform neurofibroma and nearly one third of these patients will have severe disabilities or life-threatening dysfunction directly attributable to their plexiform neurofibromas.

Advances in the treatment of intracranial and peripheral tumors in NF-1 patients have been impeded by several problems. First, the rate of tumor growth is extremely variable between different patients and even within the same patients. Periods of spontaneous growth arrest after an interval of rapid tumor growth are well-described for NF-1 optic pathway and hypothalamic gliomas. Therefore, it may be difficult to determine when to treat NF-1 patients for tumor progression and it may be even more difficult to determine if tumor growth arrest is attributable to a therapeutic intervention or spontaneous. There are no reliable non-invasive diagnostic modalities that distinguish optic pathway and hypothalamic gliomas with a low growth potential from those with a high growth potential. Second, current treatment options for NF-1 tumors, including radiation therapy and cytotoxic chemotherapy, are often ineffective and may expose NF-1 patients to high risks of treatment-associated second malignancies. Third, current measures of treatment response are based on models of malignant disease that may be inappropriate or inaccurate for these histologically benign masses. Whereas reduction of tumor volume after specific therapy represents an important goal, it is likely that other parameters of treatment response which address biochemical and functional changes in the tumor will have important prognostic value in the assessment of treatment response. This consideration may be particularly important for biological treatments that induce tumor differentiation; that is, the induction of tumor differentiation may lead to growth arrest without volume reduction.

To address these problems, we conducted multimodality neuroimaging studies in NF-1 patients with newly-diagnosed or progressove optic nerve / hypothalamic or brain stem tumors to predict the growth potential of these tumor and a randomized clinical trial of new antitumor agents in progressively enlarging OPT/HT and plexiform neurofibromas to rapidly identify potentially effective therapies. On January 15, 1994, we submitted an interim progress report which summarized the activities of our clinical research program from February through December, 1993. In response to recommendations from the Interim Review Committee, a Special Review Committee was organized by AIBS and a site visit was conducted on May 18th, 1995. The Special Committee's report made specific recommendations with respect to clinical consortium organizational issues. We responded to the Special Committee's recommendations on October 1, 1995 and summarized the steps taken to address their concerns. Subsequently, the U.S. Army granted permission for an unfunded extension of our studies beyond the 10/96 termination date.

This report summarizes the progress made between 1/ 94 and 12/ 96 concerning the conduct and preliminary results from NF-1 Clinical Trials Consortium studies. It is organized into three sections: (1) a description of the clinical trials structure and organization; (2) a review of the randomized phase II clinical trials for the treatment of NF-1 patient with optic pathway / hypothalamic gliomas or plexiform neurofibromas; (3) a review of the methods development and preliminary results for multimodality neuroimaging studies in NF-1 patients with newly-diagnosed or progressive optic pathway / hypothalamic gliomas or brain stem gliomas. It should be recognized that results from these studies remain preliminary since all studies remain open to patient accrual and a significant number of patients on the neuroimaging study will have followup studies within the next 9 months.

I. NF-1 CLINICAL TRIALS ORGANIZATION

A. ADVISORY COMMITTEES

The organizational structure and lines of reporting are summarized in Figure 1. To facilitate the recommendations made by the Special Review Committee a Neurofibromatosis Research Steering Committee was impaneled on June 21,1995. Steering Committee's responsibilities include: (1) development of standard methods and procedures for the conduct of all aspects of research conducted in this study; (2) formal review of the conduct of all aspects of research conducted in this study with respect to newly-established timelines and research goals; (3) identification of existing or emerging problems in research study conduct or design and the development alternative solutions to these problems; (4) formal, open review of data analysis data interpretation, and preliminary conclusions for all aspects of this research study; and (5) presentation to the External Advisory Committee of all research communications intended for the medical scientific community.

The Neurofibromatosis Research Steering Committee is chaired by Dr. Phillips (Grant Pl) and includes the following members: Avital Cnaan, Ph.D., Director of data management and statistical analysis; Patricia Molloy, M.D., co-investigator and project director for NF1 neuroimaging studies; Michael Needle, M.D., co-investigator and project director for NF1 clinical trials; and Sheila Vaughan, R.N., clinical coordinator for NF1 neuroimaging studies and clinical trials. Because of the technical complexity of the neuroimaging studies, a Neuroimaging Advisory Panel was established. This panel also includes Dr. Abass Alavi (Director of Nuclear Medicine at The Hospital for the University of Pennsylvania, and Co-Director of the PENN PET Center), Dr. John Hazelgrove (Director of Research Physics, Division of Neuroradiology at CHOP), and Drs Allison Hoydu and Jerry Wang (Research Physicists for MRI-flow and MRSpectroscopy, respectively, in the Division of Neuroradiology at CHOP. The Neuroimaging Advisory Panel reports directly to the Steering Committee and attends open meetings of the External Advisory Committee. Since its establishment, the Neurofibromatosis Research Steering Committee has met 28 times and the minutes of these meetings have been distributed to the off-site Consortium collaborator.
On July 10,1995, we impaneled a Neurofibromatosis Research External Advisory Committee Nominations for this Committee were made by members of the Steering Committee and selection of External Advisory Committee members was based on the following criteria: (1) all members must have no direct involvement in the conduct of research for this study; (2) Committee members must have recognized expertise in clinical research trial design, the conduct of consortium clinical trials, and/or the design and conduct of neuroimaging research trials; (3) Committee member's availability and willingness to meet frequently with the Steering Committee during the summer months and then continue their advisory role on a quarterly basis thereafter.

The External Advisory Committee is chaired by Dr. Edwin Douglass, Director of Clinical Oncology at the St. Christopher~s Hospital for Children, Philadelphia, PA. Dr. Douglass is nationally recognized for his clinical research achievements. In addition, Dr. Douglass has direct

and extensive experience in the diagnosis and treatment of childhood brain tumors as a member of the Neuro-Oncology Program at St. Jude Children~s Research Hospital. The four additional Committee members are balanced evenly between those with clinical trials experience and those with neuroimaging study experience. Dr Giulio D'Angio, Professor of Radiation Oncology at the Hospital for the University of Pennsylvania, has an international reputation for his leadership in the National Wilm's Tumor clinical consortium. Dr. James Boyett, Chairman of the Deparlment of Biostatistics at the St. Jude Children~s Research Hospital, is nationally recognized for his achievements in statistical analysis and clinical trial design and conduct. He has also served as a biostatistician for the Brain Tumor Strategy Group in the Children's Cancer Group for the past seven years. St. Jude Hospital is not a NF1 clinical consortium member. Dr. Henry Holcomb, Assistant Professor of Psychiatry at the University of Maryland, is nationally recognized for his Positron Emission Tomography studies of cerebral metabolism abnormalities in psychiatric disease. Dr. William Negendank is a nationally recognized expert in magnetic resonance imaging and magnetic resonance spectroscopy studies of the brain, is a participant in the Siemans 15-center Cooperative Group Trial of 1 H MRS in primary brain tumors, and has published extensively in these fields. Dr. Negendank is a Member (e.g., Associate Professor) of the Fox Chase Cancer Center and has no direct participation with the conduct of NF1 clinical trials.

The External Advisory Committee met in open sessions with the Steering Committee members at the Children's Hospital of Philadelphia on a monthly basis from July through October, 1995 and semianually thereafter. Closed meetings of the External Advisory Committee have also been held and additional communication between the Committee members and between the Steering Committee and the Extemal Committee have been conducted by phone and fax. External Advisory Committee Members report directly to the Committee Chairman. Specific Committee responsibilities include: (1) review of the organizational structure of all U.S. Army-sponsored NF1 research activities to assure the independence of data collection/management and data analysis and interpretation; (2) review of research study problems and proposals by the Steering Committee for their solution. Provide specific advice relevant to the solution of those problems; review of the data management input functions, including an assessment of data retrieval, database structure, accuracy of database entry, and completeness of required data entry points; (3) assist the Steering Committee with the process of establishing and monitoring realistic timetables to achieve expected patient accruals, data entry and analysis, and report the conclusions of these studies to the scientific and medical community; (4) review all research communications intended for the scientific and/or medical communities to assure the accuracy of data and validity of conclusions prior to their submission to meetings or for publication and Provide the Program Pi with a critique of proposed research communications and an indication of the of level of enthusiasm for all such research communications.

B. MULTI-INSTITUTION CLINICAL CONSORTIUM

The consortium, as originally proposed, consisted of The Children's Hospital of Philadelphia as the lead institution and ten collaborating consortium members. Selection of the Consortium institutions was based on three factors: (a) the presence of a large neurofibromatosis clinical referral base; (b) participation by the Consortium institution in a major childrens cancer consortium (e.g., the Children's Cancer Group (CCG) or the Pediatric Oncology Group (POG), thereby providing a level of assurance that the institution and the participating investigators were familiar with the procedures and responsibilities of a clinical consortium; and (3) indication by the principal investigators for each Consortium institution that they had at least two patients with progressive growth of optic pathway tumors each year and would be willing to participate in these studies. During the first 18 months of 1hese clinical studies, it became apparent that several institutions who indicated their willingness to participate were not able to do so, either because their institutional IRBs would not accept the requirement specified by the U.S. Army that the local institution accept all financial responsibility for medical complications arising from the conduct of

this trial (Chicago and Buffalo) or because of interdepartmental disagreements concerning the priority of this protocol versus other institutional protocols (M.D. Anderson). In response to these problems, we replaced M.D. Anderson with Reilly Children's Hospital (R. Jakacki, M.D., P.I.), University of Chicago with Washington University (D. Guttman, M.D., Ph.D., PI), and Buffalo with University of Arkansas (pending IRB approval; J. Ochs, M.D., P.I.). We notified the U.S. Army of these changes and worked with each institution to assist them with U.S. Army IRB approval. In consultation with our External Advisory Committee, we decided not to significantly increase the size of the existing clinical consortium.

C. Data Management and Security

Dr. Cnaan, Director of Biostatatistics, directly oversees all data management, data entry, correction and summary for the Neurofibromatosis Research studies. Figure 2 illustrates the current data collection and patient entry flow. The Study Coordinator (Ms. Sheila Vaughan) reports to Dr. Cnaan, the Director of Data Management and Biostatistics, on all issues of data management. Ms. Vaughan establishes patient eligibility by telephone with a physician at an outside institution or with Drs. Molloy or Needle at CHOP. Ms. Vaughan initiates an On-Study form and sends a copy of the complete On-Study Report Form to the referring institution or to Dr. Molloy or Needle in order to confirm the accuracy of the phone contact.

Two databases have been created using Filemaker Pro, a commercially available database program; one for the chemotherapy clinical trial and a separate database for the neuroimaging study. Because their formats are structurally similar, these databases are able to exchange information for the small number of patients that may participate in the neuroimaging and the chemotherapy clinical trial. Furthermore, the output from these databases can be converted easily to crossplatform Excel or ASCII formats; therefore, information contained in this database can be shared with other clinical neurofibromatosis databases, including that of the University of British Columbia. We revised our data collection forms to conform to the database structure. The database contains a "layout" for each form. The forms are: On-Study, Dose, Response, Laboratory, Toxicity, and Off-Study. The Appendix contains a description of each field in the database.

We made appropriate provisions for the physical safety of all study data. The data in the database is backed up onto a diskette once a week by Mr. Paul Gallagher, who constructed the database according to Dr. Cnaan's specified design. Mr. Gallagher keeps the backup diskette in his office, while the computer within which the database actually resides, is in a separate building in the Dept of Neurology. Entry to the database is restricted by password. Currently, only Sheila Vaughan and Paul Gallagher, have access to the database. Dr. Needle has an additional backup of the database in his office, providing a second backup site. He receives a backup diskette from Mr. Gallagher once every three months.

II. NEUROIMAGING STUDIES IN NF-1 OPTIC PATHWAY - HYPOTHALAMIC GLIOMAS OR BRAINSTEM TUMORS

A. Methods

MRS Methods

Technical modifications have been introduced into this protocol. At the project's inception, Siemens had provided a long echo time CSI sequence and in fact, short echo time sequences were not available. We modified the Siemens CSI sequence to aTE of 40 ms for this study to analyze glutamine and glutamate. The following details the rationale for our technical modifications and the selection of the short TE. Spectra obtained by CSI measurement can be carried out with different

echo times (TE). Spectra obtained by using long TEs (135 ms or 270 ms) contain weaker signal. Choline, Creatine, N-acetyl aspartate, and lactate are metabolites that can be diluted with long TEs and still can be detected with baselines that are flat and well defined. By contrast, glutamine and glutamate have short T2s and cannot be measured with long TEs. Since in vitro data has suggested that the glutamate/glutamine ratio may be an important prognostic indicators in brain tumors, an additional goal of this project was to evaluate glutamate/glutamine levels not well studied in central nervous system (CNS) tumors especially in pediatric patients. As a result, a short TE (<50 ms) CSI was needed to detect signal from glutamine and glutamate because these metabolites have short T_2 relaxation times. The data obtained with the short T_2 s contained more information and the signal to noise ratio (SNR) was better. The disadvantage of using the short T_2s echo times included a baseline effect that was not well-defined with broad signals from proteins. In addition, the lipid signal may become more prominent thereby obscuring both lactate and N-acetyl aspartate. Lipid signals may also appear at longer echo times. In normal brain tissue, the signal from lipids is generally weak, but in brain tumor studies, the lipid signal is often larger containing more NMR visible lipids. Fatty tissue near the tumor may also contribute to the signal and compound the problem. As a consequence, lactate and N-acetyl asparate levels will not be reliably determined. During this final year of study, we are working to obtain spectra with both long and short TEs whenever possible, although we are limited by the length of sedation time in pediatric patients.

A spin echo CSI sequence with an echo time (TE) = 40 ms and repetition time (TR) =1600 ms has been usedto date. The sequence was obtained by modifying a spin echo CSI pulse sequence provided by Siemens with a long TE (135-270 ms). The region of interest (ROI) was selected by a double spin echo (90°-180°-180°) sequence. The CSI sequence consisted of 16x16 phase encoding steps. Two acquisitions were averaged to accumulate a good signal to noise ratio. The voxel sizes for the measurement were typically 14x14x15 mm^3 or 14x14x12 mm^3. We used a TR = 1.6 sec for this data acquisition and CSI data was collected in 14 minutes but was generally much longer. A reference CSI scan was also collected for eddy current correction and for internal water signal calibration. This reference CSI scan is acquired without water suppression with a small flip angle (10°-180°-180°). Because the flip angle is small, a shorter TR = 0.82 sec was used to go through 256 phase encoding steps in three and a half minutes. The saturation factor of water signal under steady state is only about 1% assuming the water T1 is one second. In addition, we made the assumption that the NMR visible tissue water content is 70%. The water signal amplitude was then averaged over all voxels to calibrate the absolute signal intensity of the metabolites in each voxel. Thirty minutes was generally required for the CSI measurements, including 10 minutes to set up the parameters and for shimming and 20 minutes for data acquisition. All studies were performed on a Siemens Magnetom SP 1.5 T whole body MR scanner at the MRI unit at The Children's Hospital of Philadelphia. The pulse sequence was first tested on a phantom. The change of signal intensity from voxel to voxel on a uniform phantom has a standard deviation of 15%.

The MRS raw data was transferred to a SUN Sparc Station for processing. Data processing software was written in IDL (Interactive Data Language, Research Systems, Boulder, Colorado). Final MRS results were expressed as levels of metabolites in each voxel. The numbers, have millimolar units. The data acquired in the reference scan was used as an internal reference [Christiansen *et al*, 1993] for metabolite level calibration. The numbers reported in this preliminary study, are lower than the real concentrations because the relaxation effects on the signal intensities are not corrected here. When these effects were corrected, the values agreed with established normal values of metabolite concentrations.

The time domain signal for each voxel was first reconstructed for both CSI spectral data and for the reference scan. The reference signal was used to correct the eddy current effects [Klose, 1990] and to normalize the signal intensity of the spectra (Christiansen *et al*, 1993). The corrected time domain data was then multiplied by a gaussian to enhance signal to noise (width = 300 ms) and

Fourier transformed to frequency domain. The phase and baseline of the spectra for each voxel was manually adjusted.

A curve fitting routine was used to calculate the area of myo-inositol (3.55 ppm, 2 protons per molecule), choline containing compounds (3.2 ppm, 9 protons per molecule), creatine and phosphocreatine (3.0 ppm, 3 protons per molecule), glutamine and glutamate (2.0-2.5 ppm, complicated line shapes), N-acetylaspartate (2.0 ppm, 3 protons per molecule). The curve fitting of a short TE spectrum is not a trivial procedure. Each metabolite may have more than one resonance peaks and many metabolites contribute to the spectrum. Two simplifications to analyze CSI data are commonly made by investigators in this field and we adapted these two approaches: First, only contributions from major metabolites were analyzed. Other metabolites including glycine, GABA, and glucose were ignored, because their contribution is small and do not overlap significantly with other peaks. Secondly, we only quantified one component for each molecule. For example, the area of the creatine CH_3 peak at 3.0 ppm is the only peak quantified so that the creatine CH_2 peak at 3.9 ppm was not quantified. The signal from NAA at 2.6 ppm was also not used. As noted above, our objective was to collect the most interpretable data for subsequent statistical analysis.

The spectrum, divided into a three segment curve fitting, was performed on each segment. The frequency range from 1.8 to 2.8 ppm was fitted for glutamine, glutamate and NAA. In the short echo time spectrum, NAA overlapped with glutamine and glutamate. It was therefore necessary to consider all three metabolites together. We assumed that NAA was a single line centered at 2.0-2.05 ppm. The glutamine and glutamate line shapes were measured from 50 mm solutions at a pH = 7.0, using the same MRS pulse sequence. The frequency range from 2.85 to 3.35 ppm contained choline Ch_3 (3.2 ppm) and creatine CH_3 (3.0 ppm). Each metabolite was presented by a single peak and this range is fitted by these two metabolites. The frequency range from 3.35 to 4.0 contains myo-inositol (3.55 ppm). The CH proton of glutamine and glutamate and even glucose together form a broad component at about 3.7 ppm with the CH_2 of creatine at 3.9 ppm The peak areas of myo-inositol were obtained from the curve fit and area of the other two peaks were not used but all overlapping peaks from myo-inositol were considered together.

When a tumor was large enough to occupy several voxels, spectrum with lowest NAA/Cho ratio were used to represent the tumor. Control values were obtained by using the average of voxels free of tumor and CSF space based on MRI.

As research progressed we implimented three dimensional (3D) proton magnetic resonance spectroscopic imaging (^{1}H-MRSI). Similar to CSI, ^{1}H-MRSI was incorporated into the global MR examination (MRI and perfusion) to take advantage of the fact that the patients were already sedated and in the imager. Combined standard MRI, perfusion MR, and 1H-MRSI in our patients required approximately 75 minutes (35 minutes longer than the standard MRI alone). The MRI, was composed of T_1 weighted sagittal, proton density, T_1 and T_2 weighted axial spin echo, post gadolinium-DTPA injection hemodynamic imaging, and post gadolinium T_1 weighted imaging (approximately 40 minutes). The MRSI which included shimming, selection of the VOI and the actual acquisition currently required another 40 minutes. All studies were performed in the MRI unit of the Children's Hospital of Philadelphia, on the 1.5 T Siemens Magnetom Vision system. A circularly polarized adult head coil was used for both imaging and spectroscopy. Sedation was used for young children with NF1 unable to stay still in the magnet. When necessary sedation with nembutal was given, it did not exceed the maximum (6 mg/kg). With such sedation, most children slept without difficulty through this 80 minute examination.

The MRI parameters included: field of view = 220 mm, slice thickness = 5 mm, and matrix size = 256*256. For T_1 weighted images, TR=600 ms and TE = 15 ms was used. Proton density and T_2 weighted images was acquired with fast spin echo sequences and TR=3000 ms and TE=20 and 90 ms, respectively. Gadolinium-DTPA was injected after the MRSI examination.

The [1]H-MRSI studies were able to simultaneously assess hypometabolic regions identified on FDG PET and focal area of increased signal intensity (FASI) identified on MRI. Average metabolite values from voxels in the thalamus were acquired from both FASI + and FASI - voxels. An FASI + voxel was defined as a region of increased signal on T2 weighted MRI occupying > 50% of the voxel. An FASI - voxel was defined as no increased signal on T2 weighted MRI in the voxel. [1]H-MRSI metabolite peak areas were described in arbitrary units and ratios for both FASI + and FASI - voxels in the thalamus. 2D CSI which acquired spectra from an array of voxels but is limited to one plane and NF1 patients may have imaging (MRI or PET) abnormalities in more than one location, hence we took advantage of the three dimensional technique. Although our results are only preliminary, it appears that "State of the art" [1]H-MRSI best meets the requirements of NF1 abnormalities demonstrated at multiple levels.

1H-MRSI allows coverage of a three dimensional volume of interest (3D VOI) with multiple single slices sequentially interleaved. One disadvantage of slice-interleaving is it is inefficent in signal-to-noise-ratio (SNR) per unit-time. As a consequence, to obtain a reasonable voxel SNR, a time requirement of approximately 40 minutes in addition to other time constraints (time for patient loading, coil tuning, imaging and shimming) brings the total examination time to at least 100 minutes. This poses a considerable obstacle in children. The children are lightly sedated and testing is aborted when the sedation wears off. Under these constraints, the MRSI examination must be made as brief as possible for patient comfort while simultaneously preserving the scientific information acquired. To address this technical problem, hybrid of 2D-CSI with 1D HSI to achieve simultaneous 3D coverage of the VOI was accompllished by Drs. Z Wang and O. Gonen. 3D coverage has the advantage of providing the same voxel SNR as the "current-art" N=4 multislice-interleaved acquisition of similar resolution in a quarter of the time, making this procedure particularly well suited for pediatric settings in general.

The 3D [1]H-MRSI measurement was performed with a hybrid shown in the Appendix. A 135 ms echo time was used. The general form of the MRSI localization sequence, was retained throughout for data-computability reasons as well. The 135 ms echo time was selected for higher measurement precision for two reasons: 1) better definition of baseline; and 2) less interference from other peaks. A test on a uniform phantom has demonstrated that detection sensitivity for different voxels are uniform on our scanner, with the standard deviation less than 1.5% within one slice, excluding voxels at the edge of the PRESS volume in the XY plane. As a result, signals from various voxels can be directly compared with each other. The [1]H-MRSI parameters was 16x16 phase encoding steps with a field of view of 16 cm and slice thickness of 15 mm, translating into a voxel size of 1x1x1.5 cm.

The position of the patient did change through the entire MRI/MRSI session. The MRSI study includes approximately 5 to 10 minutes for setting up positions and shimming followed by about 27 minutes for collecting the spectra. The selection of volume of interest is image-guided by a neuroradiologist investigator.

Two normalization factors were taken into account in order to compare signal intensity for different patients (intersubject variability) and for the same patient over time (intrasubject variability). First, the RF coil loading was accounted for by multiplying the signal by the RF voltage needed for a 90° pulse of fixed length (inversely proportional to the detection sensitivity). Secondly, the possible instability of the MRI scanner was accounted for by a bi-weekly calibration.

MR Perfusion Methods

The particular MRI approach utilized here requires a bolus of contrast agent specifically gadolinium-DTPA (Magnevist) injected into a vein. The initial 'first pass" passage of this indicator through the brain is studied by taking a succession of images in the brain at the rate of

approximately one image every second. The effect of the gadolinium is to shorten both the Tl and the T2* relaxation times of the tissue. Conventionally, the passage of gadolinium is studied using the T2* effect (Edelman *et al,* 1990). The concentration (C) of gadolinium at any time (t) following injection is proportional to the change in the relaxivity of the tissue ($\Delta R2^*$) in the range used clinically (Villringer *et al,* 1988). $\Delta R2^*$ can be measured from the intensity of the signal before any gadolinium is injected (So), and the signal at time t (St).

$$C \alpha \Delta R2^*. \qquad \Delta R2^* = \ln(So/St)/TE$$

The mathematics of following the MR contrast is the same as that worked out by Axel for CT studies of flow using x-ray contrast media (Axel, 1980). The flow (ml blood/ml tissue/sec) can be calculated from the time course of the contrast agent in the tissue and the arterial input time course (Perman *et al,* 1992). This calculation assumes that the bolus is instantaneous yet in clinical practice, the injection is not instantaneous. A more convenient and feasible measurement in children that we have employeed was to determine the relative blood volume in the tissue (RBV) from the $\Delta R2^*$ - time curve following the bolus injection. The overriding advantages of using this indicator approach with gadolinium are: one, this approach is easy to apply clinically: two, it requires no extra patient time in the scanner because the gadolinium is injected as part of the clinical study; and three, the signal change (often about 30%) is significantly larger than the produced by the techniques that label the blood using r.f. saturation (usually 1-2 %). One disadvantage to the gadolinium bolus approach is that it is not appropriate for functional studies of multiple tasks but is useful for a single study of resting flow to tissue such as we propose in this application. The second disadvantage is that the equations assume that the contrast agents flow through the brain only once yet recirculation of the blood does occur and increases the concentration measured during the tail of the time-course curve. Some groups have answered this problem by fitting the rising part of the curve (assumed to be uniquely arising from the first pass) to a theoretical 'gamma' curve. While there are disadvantages to the use of the gadolinium bolus approach to flow measurements, (Belliveau *et al,* 1990; Weisskoff *et al,* 1993) these problems are not sufficient to prevent its usefulness in our patient population.

Patients were imaged using the same rapid gadolinium bolus described in the Preliminary Studies. Echo planar images (EPI) will be acquired on a Siemens 1.5 Tesla Vision System and transferred to a SUN workstation for post analysis. It is necessary (in principle) to integrate the whole of the area of the excursion of the image data from the baseline but again errors can be introduced by the tail of the curve. For this reason, several groups have made use of a gamma fitting algorithm that fits the rising portion of the curve to a theoretical curve, while other groups have suggested that it is sufficient to measure either the maximum excursion or the maximum rise rate of the signal in question. During the period of this grant, we investigated which of these various approaches gave the best relative measurements of the gray and white matter, and then applied the technique to measuring the RBV of the thalamus, gray and white matter for these patients.

In addition, comparison of regional metabolite measurements obtained using PET and MR perfusion imaging were carried out using ROI analysis. This approach avoided registration errors which may have been encountered while attempting to compare perfusion images obtained by differing modalities on a pixel by pixel basis, while providing a functionally relevant basis for comparison. Regions of interest which were identifiable in both PET and MR perfusion images were chosen and included:

- Frontal gray matter/white matter
- Parietal gray matter/ white matter
- Temporal gray matter/white matter
- Occipital gray mattter/white matter
- Caudate nucleus
- Putamen
- Globus Pallidus
- Thalamus
- Corpus Callosum

Confirmation of anatomic localization in PET scans was obtained using the corresponding routine MRI study. Each ROI provided a mean RBV with standard deviation from the pixels. Comparisons of these values was made using t-tests.

PET Methods

The FDG method to determine regional cerebral metabolic rates for glucose was introduced by investigators at PENN in 1976 and has been utilized extensively and validated in our laboratory. This validation has been carried out in both normal resting and activation studies as well as in disease states. Absolute quantitative studies require insertion of an arterial line, which is invasive and in our experience, is neither feasible nor warranted in children. In addition, absolute metabolic rates appear to vary considerably among and within subjects in both normal and patient populations. This results in some difficulty in documentation of changes within the same subject as a result of physiologic or other interventions, or in separating pathologic from normal states. We have tested and validated the use of relative rather than absolute quantification for a variety of purposes and in a diverse population of patients in our laboratory. For example, we have demonstrated that relative ratios are more effective than metabolic rates in separating patients with Alzheimer's disease from age-matched controls (Alavi *et al*, 1986). Relative values can be generated by either normalizing the regional raw counts or metabolic rates to whole brain or to a reference structure. The latter (region over a known structure) is employed when the reference structure is known not to be affected by the disease process. These structures can then be utilized as reference sites for generating ratios for relative quantification. In most instances, whole brain metabolic activity is being adopted as a reliable reference source for this purpose.

The use of ratios instead of absolute values are being employed as a reliable and acceptable source of information by well respected laboratories around the world. We believe by adopting the approach proposed, we have been able to utilize a non-invasive technique that will be acceptable to the consenting parents and provides reliable data. The legitimacy of this approach is further confirmed by our preliminary data included in this report.

An approach to image registration used by our laboratory involves registration and transformation of one image (e.g. PET) to the reference frame of a second image (e.g. MRI). We have developed an image registration program which is compatible with the PETVIEW software package used to display and analyze our images. This approach has been guided by the research investigators at the University of Pennsylvania as well as the experience gained from the work of others. Rather than fully automating the registration process, the program uses the human observer's sense of pattern recognition to perform the task of image registration. This was feasible since computers have become fast enough to allow real time rotation, translation, and resizing of a set of images.

This image registration program allows the observation of two complete image sets in transverse, sagittal, and coronal orientation separately and also overlaid. The observer is able to manipulate either image set through mouse controlled cursors in order to rotate, translate, or resize one image set relative to the other in all three dimensions. Thus, the observer can iteratively perform the various procedures in real time to achieve a matched set of images. By choosing different color scales and contrast levels for each image, the observer can optimize the matching using different anatomical landmarks, including the boundaries of the brain, the interhemispheric fissure, or the head of the caudate nucleus, as several examples.

The manual method of image registration is very flexible and allows compensation for abnormalities in the images. The 3-D PET image is transformed to the approximate exact orientation of the corresponding MR images, interpolated and resliced according to the thickness and pixel size of the MR image. This registration can also be performed in the other direction: register a MR to a PET image, then interpolate and reslice the MR image onto the corresponding PET image. Up to this point, we have used the PETVIEW software, developed at UPENN, to reslice the PET and MR data to the AC-PC line in order to apply the standard template of ROI's developed at our institution. This new approach of image registration is pursued to reduce both the errors and the time required for data analysis. This algorithm searches for the optimal

transformation between 3D MR and PET images based on surface matching (SM) and iterative principal axes fitting (PAF) techniques. It begins with the detection of MR and PET brain contours. The morphological operations are then applied to thresholded images to refine brain contours. Following brain contour extraction, a B-spline surface representation is extracted. Now our objective can be clearly stated as: seeking a transformation, which includes 3-dimensional translation and rotation, such that the objective function, defined as the averaged squared distance from the points on one set of contours to the B-spline surface from the other set of contours, is minimized. The final step in our algorithm is to apply SM to fine tune the registration. We have adopted both the gradient descent (GD) and iterative closest point (ICP) optimization algorithm.

Our new image registration algorithm has the following advantages; (1) cubic B-spline is expected to provide a better approximation to the real brain surface; (2) iterative PAF takes the implicit assumption of PAF into account; and 3) our algorithm takes full advantage of the speed of PAF and the accuracy of SM. The entire registration procedure is fully automated and is fast enough for routine clinical or research use.

In order to evaluate and validate the overall performance of this image registration technique, we have applied the registration software to phantom data and FDG patient data. In both cases, the average error for whole volume, measured by a distance from a point on a PET contour to a B-spline surface of MR, is less than 2mm. We also used the manual registration module in the PETVIEW package to display an overlaid image of any two sets of registered images for each case, to observe it in transverse, sagittal and coronal orientation separately. Results indicated the matching between them is also visually optimized.

Our initial approach to utilize MR anatomical information for PET quantitative analysis involve transformation of volumes of interest from the MR to PET image rather than transformation of the image itself. The volume of interest definition is based on a series of standard templates, which can be individually adjusted to the MRI defined anatomy. For the past several years the templates has been refined, including adjustment of regions to accord with the Talairach and Tournoux Brain Atlas, and procedures for implementation have been defined and tested. The current template includes 21 slices in planes parallel to the anterior-commissure - posterior commissure (AC-PC) line. Following the image registration, MR and PET images are resliced parallel to the AC-PC line to match the planes of the templates. The templates are separated by 4 mm along the z-axis and include approximately 90 volumes. For each template slice, regions are drawn on one hemisphere. Thus, hemispheric ROIs are initially of identical size and orientation. The MRI-adjusted templates are overlaid upon corresponding PET slices, again using the first slice containing caudate nucleus as a guide. From the template - overlaid PET images, count densities are determined and appropriate quantitation can be measured. It should be noted that the geometrically simple ROIs used in the analysis includes all brain structures of interest.

We have used both qualitative (visual interpretation) as well as quantitative approaches (described above) to determine the metabolic activity of the regions of interest. Qualitative assessment will use the following grading system: 1 = totally absent uptake, 2 = slightly less uptake than surrounding area, 3 = same uptake as surrounding area, 4 = slightly to increased uptake compared with surrounding area, and 5 = markedly increased uptake . Quantitative assessment will include measurements of FDG counts and calculated ratios of FDG counts in the regions of interest to whole brain. In addition to the tumor regions, there are 90 regions of interest but for statistical analysis the following regions have been analyzed:

- Frontal gray matter/white matter
- Parietal gray matter/ white matter
- Temporal gray matter/white matter
- Occipital gray mattter/white matter
- Caudate nucleus
- Putamen
- Globus Pallidus
- Thalamus
- Corpus Callosum

A single venous catheter was inserted into an antecubital vein of one arm for the administration of FDG. No arterial line to withdraw blood samples was utilized for this research. A second venous line was used initially in the first 17 studies. All patients who required sedation were sedated with pentobarbital at identical doses to those used in MRI scan sedation. The sedation was initiated at least 40 minutes after the administration of FDG and before the imaging was started. FDG was administered as a bolus 30 uci/kg (25% of the standard dose) becausse of the high sensitivity of the HEAD-PENN-PET scanner. Forty minutes after the administration of FDG, the patient was positioned into the HEAD-PENN-PET scanner. The PET scans were acquired parallel to the canthomeatal line and included the entire brain and the upper cervical spinal cord (the axial field of view for this instrument = 26 cm). The total imaging time was 30 minutes which in our experience was tolerated well by our pediatric NF1 patients.

Patient accrual

A total of 35 NF_1 patients with central nervous system tumors have been enrolled on either the treatment or neuro-imaging arm of this study (Appendix #1). Twenty eight patients were enrolled on the imaging arm including 10 patients with brainstem tumors, 11 patients with newly diagnosed optic pathway tumors and seven patients with progressive optic pathway tumors. Patient characteristics are detailed in Appendix #2. In addition, eight patients had both brainstem tumors and optic pathway tumors.

B. RESULTS

Preliminary MRS Results

A total of 23 NF_1 patients studied with short TE chemical shift imaging on 41 studies have been analyzed to date. The tumors studied were divided into two categories according to tumor location in the optic pathway or brainstem (Table # 1). While eight patients had tumors in both locations, the single slice CSI pulse sequence can only measure tumor at one location in one study session.

Interpretable data was obtained from 33 CSI examinations including 20 studies of 12 optic pathway tumor patients and 13 studies of 6 patients with brainstem tumors. Of the 41 studies analyzed to date, CSI could not be achieved in eight patients. Four patients had dental braces or other metal implants near the MRS region of interest and shimming was difficult. In those patients, we used single voxel techniques when shimming for CSI could not be achieved. The studies with single voxel technique will not be reported in our preliminary dara. In three studies, patient motion during the exam due to inadequate sedation resulted in discontinuation of the study or unreliable data. In one study, the data was lost because of malfunction of the storage optical disk. Five additional studies analyzed with three dimensional (3D) proton magnetic resonance spectroscopic imaging (1H-MRSI), our newest technical modification are also reported. As the project is ongoing, several studies have yet to be analyzed. Correlation of MRS with MR perfusion and FDG PET will be included in our final report of October, 1997.

Table #1. Tumors Analyzed with CSI Technique

Tumor Location	Patient #	Total Studies
Optic Pathway	12	20
Brainstem	6	13

<u>Brainstem tumor results utilizing CSI technique:</u>
The first group of NF1 patients with CSI examination had tumor in the brainstem, often with extension to the cerebellum (Table #2). Our accrual goal of ten NF1 patients with brainstem tumors was achieved. We summarize the preliminary results from the first six patients in Table # 2.

For these patients, choline was significantly higher in the tumor than control ($p<0.03$). When tumor regions were compared with control regions, creatine and NAA were both significantly decreased with p values 0.01 and 0.02 respectively. Ratios of Cr/Cho and NAA/Cho were also decreased significantly with p values <0.001 for both ratios. While there were insufficient patient numbers in the brainstem tumor group to detect a difference between progressive and non-progressive disease across the group, significant differences between tumor and control regions in single subjects were noted.

Table # 2
Brainstem Tumors Compared to Control Spectra Analyzed by CSI Technique (Intra-subject Evaluation).

Metabolite	choline	creatine	NAA	Cr/Cho	NAA/Cho
Tumor	2.2±0.5	4.1±1.3	3.5±2.2	1.8±0.6	1.6±1.0
Control	1.8±0.6	5.3±1.1	5.2±1.9	3.1±0.9	3.0±1.1
p-value	0.03	0.01	0.02	0.0004	0.001

Data is based on the first 6 patients with 13 CSI exams and brainstem tumors.

<u>Optic pathway tumor results utilizing CSI technique:</u>
Eleven patients with newly diagnosed optic pathway tumors and seven patients with progressive optic pathway tumors have been accrued for a total of eighteen NF1 patients with optic pathway tumors imaged. We report our preliminary data based on metabolites in 20 studies in 12 patients with optic pathway tumors (both newly diagnosed and progressive optic pathway tumor).

In NF1 patients with chiasmal tumors, the tumor was usually smaller than the size of one voxel. The remaining space in the voxel was occupied by CSF partial volume (typically 15-25%), thus all metabolites may appear to have a lower intensity. We divided all metabolite levels in chiasmal tumor by 0.8 to correct for this effect. Tumor in the optic tracts or optic radiations were often large enough to fill a whole voxel. Compared with the control spectra, the tumors had statistically significant increase in choline, decrease in NAA and decrease in NAA/Cho ratio (Table # 3).

Table #3.
Optic Pathway Tumors Compared to Control Spectra Analyzed with CSI Technique (Intra-subject Evaluation)

Metabolite	Choline	Creatine	NAA	Cr/Cho	NAA/Cho
Tumor	1.7±0.6	3.7±2.0	3.1±0.6	2.5±1.3	2.1±1.1
Control	1.4±0.4	4.0±1.2	5.0±1.2	2.9±0.8	3.5±1.2
p-value	0.05	0.31(n.s.)	0.0002	0.13(n.s.)	0.0002

Data was based on metabolites from 20 studies in 12 OPT patients.

A major objective of this study was to determine whether MRS parameters were correlated with tumor growth and progression across the groups. The average values and standard deviations were calculated for three groups: (1) new tumor diagnosis at study onset; (2) progressive tumor at study onset; and, (3) tumor progression during the study period (Table # 4). The average choline level was the highest for tumors that progressed on study and the lowest for new tumors with no progression. However, no significant differences in average values of metabolite levels or ratios were found between progressive tumors and non-progressive tumors in mean values by ANOVA ($p> 0.05$) for all variables most likely due to the small nubers or limited power of the study. In one patient with progressive disease during the study period and one patient with progression at study onset had metabolite levels generally lower than control brain tissue. Both patients had chiasmal tumor with extension to the optic radiations. In both cases, the optic radiation tumor was

measured. One patient with surgical resection for clinical progression had pathologically proven fibrillary astrocytoma.

Table #4
Optic Pathway Tumors Analyzed with CSI Technique (Inter-subject Evaluation)

Metabolites	# of patients	# of studies	choline	creatine	NAA	Cr/Cho	NAA/Cho
New Tumor Diagnosis	4	9	1.5±0.3	3.5±2.0	3.1±1.4	2.6±1.3	2.4±1.0
Tumor Progression at Study Onset	4	6	1.8±0.8	3.7±2.5	2.6±1.7	2.3±1.3	1.8±1.0
Tumor Progression on Study	3	4	2.0±0.8	4.1±1.7	4.3±1.4	2.6±1.4	2.1±1.5
p-values			0.26	0.89	0.31	0.87	0.60

<u>Preliminary results utilizing 1H-MRSI technique:</u>
As described in our methodology section as our research progressed we implemented 1H-MRSI to better characterize those NF1 patients with multiple glial CNS tumors located in both optic pathways and in the brainstem, as well as focal areas of signal intensity (FASI) or unidentified bright objects (UBO) in multiple brain regions.

Five children with NF1 have been studied with 1H-MRSI to date. All five patients had tumors of the visual pathways or brainstem. The analysis of three patients is demonstrated in Table #5. In addition, all five patients had focal areas of signal intensity (FASI) identified on MR imaging of the thalamus and other brain regions (described below).

Table #5. Tumor Analyzed with 3d Spectroscopic Imaging.

	Patient #	choline	creatine	NAA	Cr/Cho	NAA/Cho
Chiasmal tumor	506	73	116	135	1.69	1.83
	307	49	137	209	2.76	4.23
	303	115	149	120	1.29	1.05
Control regions	506	116±63	238±117	196±106	2.22±0.72	0.79±0.58
	507	57±23	165±55	243±69	3.12±1.08	4.80±2.04
	303	73±22	144±44	222±46	2.1±0.72	3.3±1.1
Additional tumor regions	506	163±63	257±180	165±91	1.62±0.81	1.20±1.02
	303	108±29	194±53	206±38	0.63±0.18	0.69±0.27

* Metabolite levels are listed in arbitrary units.

We have included an image that utilizes 1H-MRSI techniques to illustrate the difficulty in clearly discerning tumor infiltration and normal brain regions from FASI + regions (Fig 1). The significance of these findings are being explored in the final year of study.

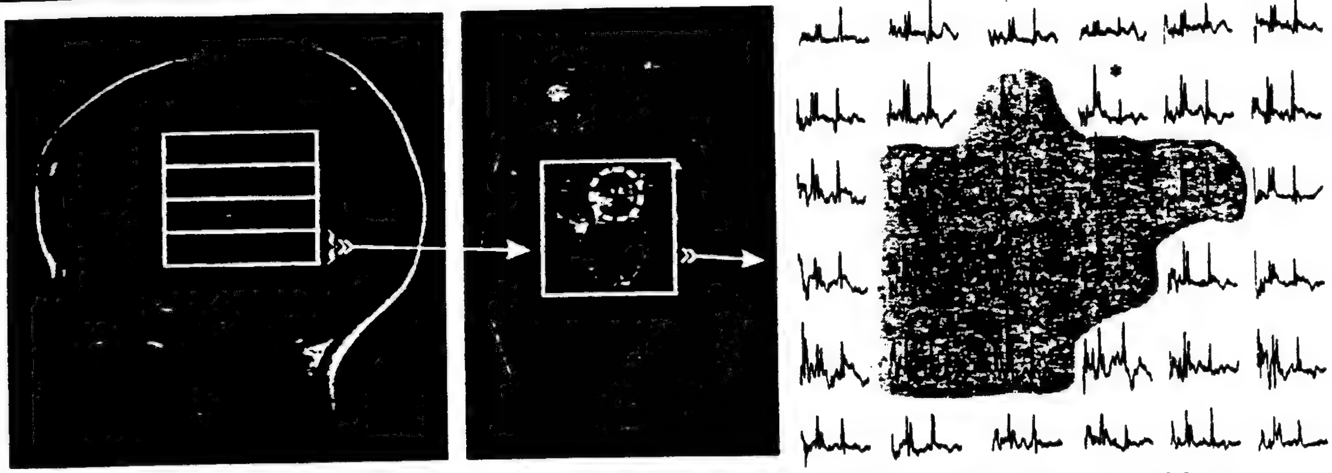


Fig. 1 Sagittal image showing the placement of the VOI with the four HSI slices. The VOI, tumor (circled) and the FASI (highlighted) are demonstrated (axial T_2 weighted FLAIR image/slice #4) with spectra displayed to the right. The tumor region is marked with an asterisk. The shaded area highlights regions of elevated Cho/NAA in the temporal lobe. This region was specifically selected because it has been read as both "FASI" and "tumor" by two neuroradiologists highlighting the heterogeneity of this disease.

Data utilizing the 1H-MRSI technical modifications in these patients (Table #6) and in two healthy adult volunteers (Table #7) are described in this report. Average metabolite values from voxels in the thalamus were acquired from both FASI + and FASI - voxels. An FASI + voxel was defined as a region of increased signal on T2 weighted MRI occupying > 50% of the voxel. An FASI - voxel was defined as no increased signal on T2 weighted MRI in the voxel. 1H-MRSI metabolite peak areas were described in arbitrary units and ratios for both FASI + and FASI - voxels in the thalamus. The 1H-MRSI data had been normalized by RF loading of the coil.

Our preliminary results (Table #6) utilizing 1H-MRSI technical modifications include the following:

1) FASI + voxels in the thalamus had higher Cho and higher Cr compared to FASI - voxels;
2) FASI + voxels in the thalamus had increased Cho/NAA ratios and increased Cr/NAA ratios when compared to FASI - voxels;
3) FASI + voxels in the thalamus had relatively normal NAA similar to FASI - voxels;
4) Even FASI - voxels in the thalamus had increased Cho which suggested a diffuse pathologic process in this region in NF1 patients.

Table #6
Comparison of metabolite levels measured by ^{1}H-MRSI in FASI+and FASI- voxels in the thalamus of five NF1 patients (values are peak areas in arbitrary units).

NF1 Subjects	Subject age	FASI+ voxels (average)					FASI- voxels (average)				
		Cho	Cr	NAA	Cho/ NAA	Cr/ NAA	Cho	Cr	NAA	Cho/ NAA	Cr/ NAA
#1	3 years	382	255	318	1.2	0.8	288	190	288	1	0.66
#2	3 years	569	292	157	3.62	1.86					
#3	3 years	259	172	166	1.56	1.04	249	230	242	1.03	0.95
#4	4 years						200	166	206	0.97	0.81
#5	10 years	243	193	194	1.25	0.99	205	166	246	0.83	0.67
Average		363	228	209	1.91	1.17	236	188	246	0.96	0.77

The normal development of the thalamus as measured by 1H-MRSI has not been reported. It is expected that healthy adults have lower Cho and higher NAA than healthy children. Examples of normal adult metabolite levels measured by 1H-MRSI are provided as preliminary data in table 2b for comparison. Age-matched control studies to validate metabolite data acquired in NF1 patients are needed.

Table #7:
Metabolite levels measured by ^{1}H-MRSI in the thalamus in two adult control volunteers (values are peak areas in arbitrary units).

	Cho	Cr	NAA	Cho/NAA	Cr/NAA
Adult 1, 25 y	129	119	302	0.43	0.39
Adult 2, 35 y	149	122	259	0.58	0.47

Preliminary MR Perfusion Results

Preliminary experiments were conducted using the gadolinium bolus technique for measuring perfusion in NF1 children with brain tumors resulting in considerable expertise with this technique. Technical refinements in our perfusion imaging and flow visualization have improved the quantitative characterization of blood flow in children over time.

We will first describe our early efforts and then detail our later refinements which are included in this preliminary report. All studies were initially performed utilizing the T1 effect using a T1 weighted inversion recovery turbo-gradient echo sequence (Schwarzbauer et al, 1993). The effective TI = 850ms, the single slice thickness = 5 mm: and the field of view (FOV) was approximately 200-250mm (depending on the size of the child) with a matrix size of 128*128. One image was obtained every 2.5 seconds. Unfortunately, these early studies were compromised somewhat by the requirement, that previously existed in our hospital, that pediatric patients were not permitted to have rapid contrast injections. The gadolinium 'bolus' was therefore injected over a period of at least 20 seconds.

Twenty-five NF1 patients with brainstem and optic pathway tumors have been analyzed to date. Fourteen patients have interpretable blood flow data that is attached as an Appendix. As the study is ongoing, several studies are still being analyzed. The blood flow/blood volume in NF1 related brain tumors was assessed as the integral of the area under the curve (AUC) in our preliminary

results. Since the purpose of this study was to correlate blood flow/blood volume with glucose uptake in the tumors on FDG PET scans and metabolites on MRS, we will not complete this analysis until study closure in October, 1997.

We specifically include in this interim report the results from three patients with assessment of perfusion of the thalamus since this region had produced statistically significant results with FDG PET imaging. We have included examples of our preliminary data from three different NF1 subjects. Figure 2 shows the initial time course of the signal in three NF1 studies. We are reluctant to derive any quantitative results from this data because of the long time course over which the gadolinium was injected. Nonetheless it is clear that in all patients, the signal changes in the white matter are about half that of the grey matter. When compared to both white and grey matter signal, the signal from the thalamus varies substantially from patient to patient. In figure 2 image a, the signal from the thalamus is similar to that of the white matter, while in image b, the signal appears close to that of gray matter. Finally in figure 2 image c, the signal change in the thalamus is intermediate between gray and white matter. While it is difficult to interpret this preliminary data in terms of regional cerebral blood flow/blood volume, it is apparent that evaluation of regional blood flow to the thalamus may be decreased in some NF1 patients.

We have recently developed a hospital approved protocol for injecting the gadolinium rapidly (total time = 3 seconds). Figure 2 d shows the results of measuring the blood flow in an image slice that includes the region of the thalamus in a 10 year old girl with NF1. The patient was positioned in Siemens 1.5 Tesla vision whole body NMR system in a head coil. Sagittal Tl weighted images were obtained for localization of the plane of the subsequent study. 60 T2* weighted echo-planar images were taken in succession with the following parameters: effective TE=64ms, 1 second between images, FOV=250mm, matrix size 128*128, slice thickness 7 mm. After 10 images had been taken, O.1mm/kg of gadolinium (Magnevist, Berlex) was injected into a brachial vein over a period of 3 seconds. The images, were transferred to a Sun Sparc II workstation via a local hospital network and there analyzed using the programs written in IDL (Research Systems Inc. Colorado). The first five images of the set were ignored because this is the period during which the system is achieving a steady state. Then three regions of interest (white, grey and thalamus) were identified, and the average signal for each area calculated from each image. The set of 55 intensity values were analyzed as a 55 second long time study. The first 5 points were averaged to generate the baseline value (So), and for each time point (t) the change in relaxivity calculated as $\Delta R2^* = 1n(So/St)/0.064$ where St is the intensity of the pixel at time t. Figure 2 d shows the time course of $\Delta R2^*$. The relative flow for each region of interest was then calculated as the sum of the values of $\Delta R2^*$ for all 55 time points. From this data we measure that the relative blood volume for gray, white matter and the thalamus are 1.92, 1.05, 1.28. The ratio of perfusion between gray matter and white matter is approximately 2:1 in general agreement with the literature (Wood, 1987).

Estimate of Regional Cerebral Blood Flow (RBV) in Three NF1 Subjects

Figure 2a

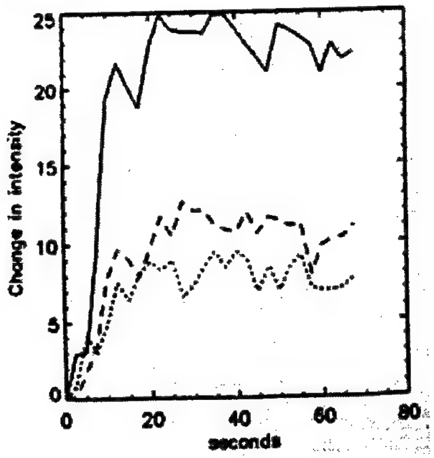


Figure 2b

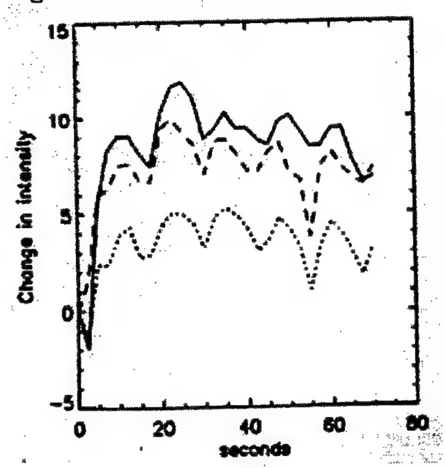
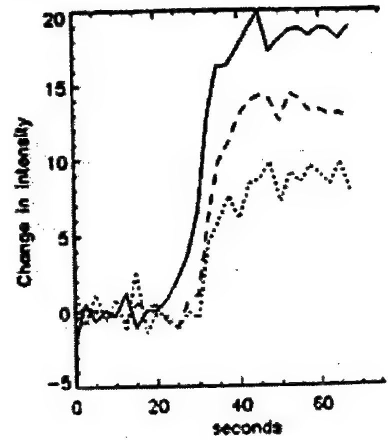
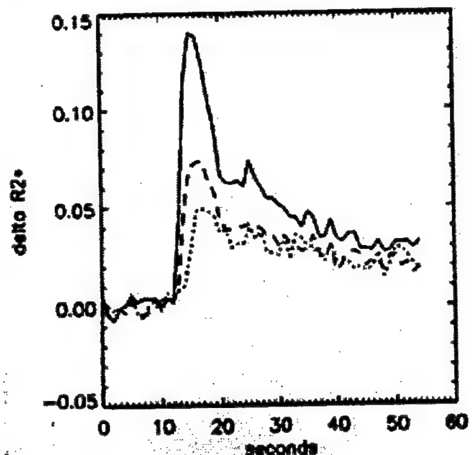


Figure 2c



____ = RBV (grey matter)
\- - - - - = RBV (white matter)
...... = RBV (thalamus)

Figure 2.d. Estimate of Regional Cerebral Blood Flow (RBV) in NF1 Subject with Rapid Gadolinium Bolus (< 3 seconds)



____ = RBV (grey matter)
\- - - - - = RBV (white matter)
...... = RBV (thalamus)

Preliminary PET Results

The NF1 research team at The Children's Hospital of Philadelphia (CHOP) was funded by the US. Army Research and Development Command to explore the role of modern imaging techniques in NF1 patients with brain tumors. Twenty-four NF1 subjects have completed 33 FDG PET studies. Twenty four patients were enrolled and three patients with newly diagnosed optic pathway tumors

who progressed were re-enrolled oon the progressive neuro-imaging arm of the trial. Therefore a total of twenty-seven neuro-imaging slots were filled including: 10 patients with brainstem tumors, 10 patients with newly diagnosed optic pathway tumors and seven patients with progressive optic pathway tumors.

Of the 10 patients with brainstem tumors (Army # 401-410), only one patient had progressive disease requiring a surgical resection for a cervico-medullary fibrillary astrocytoma, but unfortunately the patient's family refused a second FDG PET study at the time of progression. Therefore there are no consecutive FDG PET scans of brainstem tumor patients with progressive disease. Decreased FDG uptake was noted both by visual grade and by FDG counts in all patients with brainstem tumors analyzed to date and was statistically significant. In fact, we have reported decreased FDG uptake in the brainstem of NF1 patients with or with out brainstem tumors. In the first 20 FDG PET studies in 14 NF1 patients analyzed, the mean visual grade of the brainstem with or without brainstem tumors = 2.25 [(SD = 0.55) $p<0.001$]. We found there was good correlation between FDG uptake and counts in the brainstem of NF1 patients with or without a brainstem tumor.

Of 11 patients with newly diagnosed optic pathway tumors (Army # 301 -311), one patient (Army # 306) refused FDG PET study but completed the other neuro-imaging exams. Of 10 patients with newly diagnosed optic pathway tumors, one patient had disease of the thalamus, midbrain, and hypothalamus (Army # 310/ 505). Three patients (Army # 309,310 & 311) had progressive disease both clinically (visual or neurologic deterioration) and radiographically (increased tumor size greater than 10% on MRI). The first two patients with progressive optic pathway tumors had very metabolically active tumors (Army # 309 & 310). Both patients had biopsy proven fibrillary astrocytomas and one of these patient is in supportive/hospice care (Army # 310). The third patient with a progressive optic pathway tumor had a PET imaging pattern consistent with a metabolically inactive tumor (Army # 311). One patient with a metabolically active tumor (optic radiations) by FDG PET scanning had no radiographic (MRI) tumor progression but developed seizures although not a clear clinical progression (Army # 301). The remaining 7 patients had optic pathway tumors seen as metabolically inactive.

Of 14 patients with progressive optic pathway tumors treated with 13 cis retinoic acid, alpha interferon 2A, or oral etoposide, seven patients participated on the neuro-imaging arm (Army # 501-507). Two of the 14 patients treated for their progressive optic pathway tumors had disease progression (Army # 309/504 & 310/505). The first patient previously on the newly diagnosed optic pathway tumor arm had progressive disease and a metabolically active tumor on FDG PET (Army # 309/504). The second patients refused further imaging at progression (Army #310/505). The remaining five patients had metabolically inactive tumors.

This series attempted to give insight into the utility and value of FDG PET imaging in NF1 patients with central nervous sytem tumors. Optic pathway and brainstem tumors may pose a difficult problem from imaging, diagnosis, and clinical treatment because these tumors are in general histologically benign but can occassionally have an aggressive course. Our study did not have a long enough follow-up, nor did enough patients progress to generate patient outcome predictions based on imaging.

As a part of this study, other important PET imaging data has emerged. Areas of cortical and subcortical regions of hypometabolism have been identified, most notably in the thalamus. We find this an interesting result because the thalamus as the possible target area for neurocognitive deficits in NF1 has been suggested previously by other investigators (Moore et al, 1996, Kaplan et al, 1996). In addition, Kaplan et al noted decreased glucose metabolism in the thalamus on FDG PET scans in their series of NF1 patients (Kaplan et al, 1996), a confirmation of our work.

In this preliminary summary, we report a consistent pattern of decreased glucose uptake in the thalamus in our NF1 patients, which was based on both qualitative analysis (visual grade) and quantitative analysis (ratios of FDG count to whole brain) (see methods). Twenty-four NF 1 patients had 33 FDG PET scans. To recapitulate, all brain regions and tumors were assigned a visual grade (VG) based on FDG uptake (1 = absent, 2 = decreased, 3= normal, 4 = moderately increased, 5 = markedly increased). FDG counts and visual grades were recorded and correlated from multiple brain regions, including: frontal (FR), parietal(PA), temporal (TE), and occipital (OC) lobes, visual cortices (VC), caudate (CD), globus pallidus/putamen (GP) and thalamus (TH) (Table #8). In addition, counts from the thalamus were compared to counts of the basal ganglia and hemispheres. Comparisons of these averaged counts between thalamus and basal ganglia, and between thalamus and hemispheres were made by means of t-tests. Both paired t-tests and independent t-tests for groups with unequal variances were utilized (Table #9). The thalami, visual cortices and temporal lobes had significant hypometabolism that was reflected on consecutive studies. There was also excellent correlation between visual grades and FDG counts based on region of interest analysis normalized to whole brain activity. Independent t-test for groups with unequal variances demonstrated both statistically significant differences between averaged counts of the thalamus and those of the basal ganglia, and also between counts from thalamus and counts from hemisphere.

Table #8 Mean Visual Grade on FDG PET Studies (24paients/33 studies total)

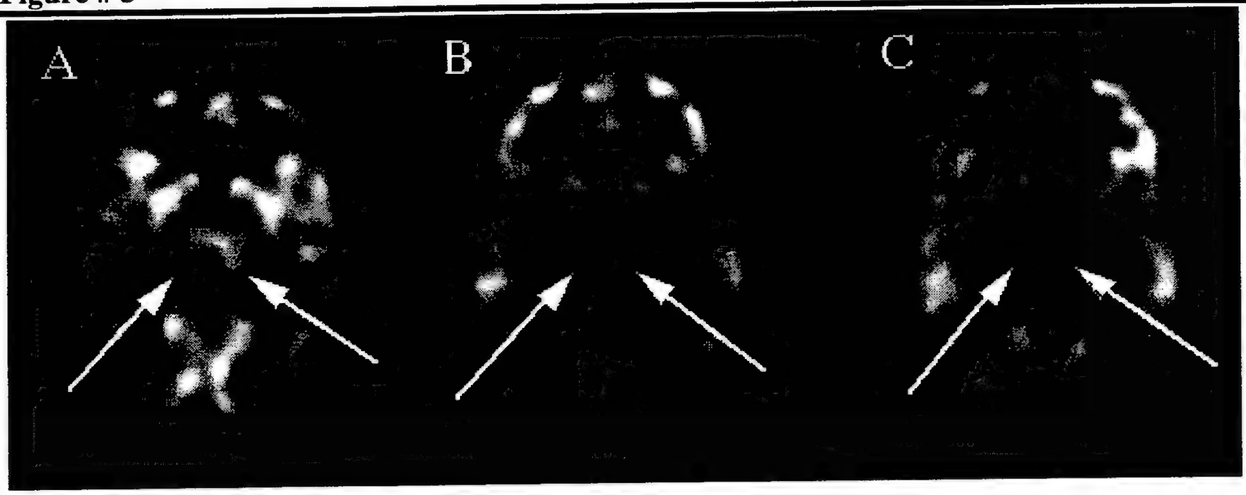
Region	**Mean VG 1st scan (24 studies)**	**Mean VG 2nd scan (9 studies)**
FR	2.89	2.83
PA	2.79	2.70
TE	2.18	2.17
OC	2.69	2.56
VC	2.16	2.14
CD	2.70	2.83
GP	2.96	2.78
TH	1.85	1.89

Table # 9. t-tests for independent samples with unequal variances

Region	# of Patients	Mean FDG counts	SD	Uneq.Var t-value	df	2-Tail Sig
R-thalamus	24	127538.3800	57865.650			
R-hemisphere	24	12072207.858	4224154.26	-13.85	23.01	.000
L-thalamus	24	115702.5017	54238.458			
L-hemisphere	24	12284157.671	4329814.36	-13.77	23.01	.000
R-thalamus	24	127538.3800	57865.650			
R-basal ganglia	24	59887.8151	23080.803	5.32	30.14	.000
L-thalamus	24	115702.5017	54238.458			
L-basal ganglia	24	51732.9761	18464.011	5.47	28.26	.000

The mean visual grade of the thalamus in 24 subjects was 1.87. Both paired and independent t-tests resulted in significant differences between averaged counts of the thalamus and basal ganglia, and averaged counts between the thalamus and each hemisphere and whole brain. In figure 3, the glucose uptake in the thalamus of a normal subject (image a) is compared with decreased thalamic metabolic activity in two patients with NF1 (images b & c).

Figure # 3



Normal glucose uptake in the thalamus (arrows) in a control subject (image a) compared to decreased glucose uptake in the thalami (arrows) of two NF1 subjects (image b & image c)

C. CONLUSIONS

MRS

Our research represents the largest pediatric neuro-imaging study in Neurofibromatosis Type 1. Our MRS study confirms that NF1 related optic pathway and brainstem tumors are similar in metabolite profile to low grade astrocytomas in non-NF1 patients. Brainstem tumor patients had increased choline and decreased creatine similar to histologically benign low grade astrocytomas. Optic pathway tumors had increased choline which is similar to the metabolite pattern seen in non-NF1 low grade astrocytomas. In the optic pathway tumors, creatine was not decreased significantly, as was expected, and may reflect a biochemical difference in these tumors in NF1 versus non-NF1 populations.

Preliminary 3D spectroscopic imaging demonstrated increase in both choline and creatine in the thalamus. These metabolites were specifically increased in thalamic voxels that demonstrated focal areas of increased T2 signal on MRI (FASI), but were also mildly elevated in "normal -appearing" MRI regions. These preliminary results expand our previous findings of ubiquitous hypometabolism in the thalamus on FDG PET in NF1 patients.

These preliminary results from CSI and 1H-MRSI may contribute significantly to our understanding of the neuropathology of NF1 by characterizing both tumors and regions of hypometabolism identified on PET and FASI identified on MRI. Implementation of 1H-MRSI in pediatric NF1 patients has proven effective as a semi-quantitative measurement of metabolites with signal intensities and metabolite ratios and as an application of an innovative imaging technique never previously investigated in pediatric patients including those with NF. Correlation with FDG PET and MR perfusion will be done at the study conclusion in October 1997.

MR Perfusion

We believe that the modifications made over the past three years in our quantitative MRI perfusion imaging techniques are now providing an accurate, fairly non-invasive measure of blood flow to tumor and other brain regions in patients with NF1. MR perfusion techniques in NF1 patients

have provided high resolution quantitative images with ease and safety. At study conclusion, and with the analysis of our final data set containing all studies, we anticipate that blood flow images will complement indices of metabolic activity obtained from FDG PET and may correlate with MRS findings.

FDG PET

Both brainstem and optic pathway tumors were as a group metabolically inactive with few exceptions. During the time period of the proposal, we have not had sufficient patients with tumors imaged at diagnosis and again during progression which would allow us to evaluate the role of metabolic imaging as a true prognostic factor. progression was no evidence of tumor progression as determined by PET metabolic imaging. While longer follow-up would be required to correlate FDG PET images with central nervous system tumor progression, these studies have been productive in an unexpected fashion. We have learned much about the functional map of Neurofibromatosis Type1, both at the site of known brain tumors and in adjacent areas as well as unaffected brain regions. Of great interest, has been the hypometabolism noted in the thalamus, visual cortices and temporal lobes. To our knowledge, no other central nervous system disorder has demonstrated such striking uniform imaging abnormalities of the thalamus. The pervasive hypometabolism noted in the thalamus of NF1 patients may advance our understanding of this neurologic/neurocognitive deficits of this disorder. In addition, this research may also have important implications for the role of the thalamus in other childhood neurologic diseases.

III. RANDOMIZED PHASE II TRIAL OF CIS-RETINOIC ACID, INTERFERON α2A, AND ETOPOSIDE IN NF-1 PATIENTS WITH PROGRESSIVELY ENLARGING OPTIC PATHWAY / HYPOTHALAMIC GLIOMAS OR PLEXIFORM NEUROFIBROMAS.

A. INTRODUCTION

Three agents were selected for clinical trial. Oral VP-16, a conventional cytotoxic which has shown activity against low grade gliomas was selected for the optic pathway tumor clinical trial. This stratum of out clinical trial, therefore, involves the treatment of a bona fide neoplasm. However, we did not include oral VP-16 in the treatment randomization of progressive plexiform neurofibromas (i.e. not bona fide neoplasms) due to the potential of this and other conventional chemotherapeutic agents to cause secondary tumors.

Rationale for the use of a2a interferon (IFN) comes from the published studies by Dr. Judah Folkman concerning the anti-angiogenic action of a2a IFN. In this model all tumors, benign or malignant, need a growing vascular supply to support tumor growth. Any agent that will interfere with angiogenesis should inhibit or reverse tumor progression. One agent currently licensed for use in the United States which has these properties is IFN. IFN has been used to treat children with life threatening hemangiomas of infancy resistant to steroids]. IFN has demonstrated activity against meningioma cell lines derived from patients with NF 2 in-vitro], and has direct antitumor activity against hairy cell leukemia. It may also exert some effect on solid tumors apart from any angiogenic activity.

Rationale for the use of cis-retinoic acid (CRA) is based on its potential as differentiating agents in cancer. All-trans retinoic acid is effective in the treatment of acute promyelocytic leukemia. CRA has demonstrated activity in neuroblastoma, although it's role in the management of this tumor remains minimal. CRA is the subject of intense investigation as a chemoprotectant for breast

cancer and has been demonstrated to reduce the incidence of tumor recurrence in patients following treatment for aerodigestive tract cancer [Lee, 1994 #30]. Published data suggests that CRA alters the splicing pattern of the NF 1 gene transcript [Nishi, 1991 #29]; however, this observation has not been tested directly in PN cell lines or in malignant tumor cell lines from patients with NF 1.

B. METHODS

Patient Population:
Patients who were older than 12 months of age, met NIH consensus criteria for the diagnosis of NF-1, and had objective evidence of progressive enlargement of a tumor of the optic nerve, optic chiasm, optic radiations, or hypothalamus (Stratum I), or a disfiguring or disabling plexiform neurofibroma (Stratum II) were eligible for treatment. Patients with recurrent or progressive intracranial tumors that were previously treated with radiation therapy and/or chemotherapy are eligible. Specific exclusions include pregnancy, visual acuity less than 20/200 in one or both eyes, brainstem glioma, histology confirmed diagnosis of malignant glioma (i.e., anaplastic astrocytoma, glioblastoma, or gliosarcoma) or other malignant histology, rapid progressive symptomatic spinal cord compression (PN), or other rapidly progressive life-threatening complications of plexiform neurofibroma growth. Female patients who have reached menarche must have a negative serum β-HCG within 48 hours prior to each therapy cycle. Biopsy confirmation of tumor histology is not required for study entry. Children's Hospital of Philadelphia Institutional Review Board- and U.S. Army-approved Informed Consent Documents were signed by patients and/or parents of patients prior to participation in these studies.

We modified the entry criteria for the Optic Pathway stratum with full approval from the External Advisory Committee in 9/1/95. Accordingly, all optic pathway tumor patients must have documentation of progression either by MRI or by a change in visual acuity of two steps on standard visual acuity charts within six months of study entry. These modification effectively prevent study entry for patients who had an MRI two years ago and the next MRI two months before study entry. In fact, all optic pathway patients currently on study meet these criteria.

Stratum 1Treatment: Optic Pathway / Hypothalamic Tumor Phase II Trial
At the onset of this study, eligible patients were randomly assigned to one of three treatment arms: Arm 1 - cis retinoic acid (CRA; 60 mg/m2 by mouth daily for 21 days followed by 7 days of no drug treatment x 12 months); alpha 2a Interferon (1,000,000 with dose escalation in increments of 500,000 units to a maximum of 4,000,000 IU/m2/day administered by subcutaneous injection daily for 12 months); or etoposide (VP-16; 50mg/m2, daily by mouth for 21 days followed by 7 days with no drug treatment. Volumetric MRI scans were performed every 12 weeks to assess treatment response and MRS and PET scans were performed at 3 months and 12 months after the start of treatment. Because of poor accrual to Stratum 1, we terminated randomization procedures in order to complete the phase II study of etoposide. This action was taken in October, 1995 at the advice of our External Advisory Committee. Full notification of the U.S. Army was made and approval obtained. Consent forms and IRB documents were modified to reflect these changes.

Stratum 2 Treatment: Plexiform Neurofibroma Phase II Trial
Eligible patients referred for treatment of progressively disfiguring or disabling plexiform neurofibromas were randomly assigned to one of two treatment arms: Arm-1, 13- Cis Retinoic Acid (CRA); Arm-2, Alpha Interferon 2a (INF). Patients assigned to the CRA treatment arm received a dose of 60mg/m2, daily by mouth for 21 days followed by seven days of no drug treatment. This 28-day treatment cycle is repeated for 13 cycles (1 year). Patients assigned to the Alpha Interferon 2a arm were treated with an initial dose of 1×10^6 IU/m2 administered daily by subcutaneous injection for one year. Objective evidence of response was assessed every 12 weeks after the start of treatment, based on direct measurement of surface neurofibromas or soft-tissue MRI scan of deep neurofibromas. For all patients, routine complete blood counts and blood

chemistry values were monitored on a regular basis, weekly during treatment with VP-16 and monthly for treatment with CRA and INF.

The plexiform neurofibroma (PN) strata accrued patients at two times the rate that was originally projected. In joint consultation and with the explicit approval of the External Advisory Committee, we made three changes in the plexiform neurofibroma study. We modified our study objectives to include an assessment of cessation of tumor growth as a treatment outcome. We also tightened patient entry criteria by requiring more rigorous objective evidence of tumor growth (i.e., MRI or recorded tape measurements independently by two different physicians) within no more than six months from data of study entry. In addition, we modified patient accrual targets for plexiform neurofibroma patient entry to allow us to enroll a total of 56 patients who meet the more rigorous documentation criteria for tumor progression prior to study entry. This will allow us to evaluate more "clinical observation" evidence of response, and generate hypotheses regarding cessation of tumor progression as an outcome measure. These modifications do not require a change in the consent form; however, we revised our protocol to indicate the changes, submitted the amended protocol to the CHOP IRB for review, received approval from the CHOP IRB on September 25, 1995, notified the U.S. Army of these changes in research design, and provided an amended protocol to all Consortium members.

All patients in this study were required to have objective evidence of plexiform neurofibroma growth determined by radiologic (e.g. CT or MRI) or direct measurement (e.g. physician tape measurements) criteria. However, at the onset of the trial, we did not specify the interval between measurements. If we use tumor stabilization as a criterion, we must be certain that patients entering study are truly progressing, i.e., have actively growing tumors at study entry. Toward that end, we tightened entry criteria by specifying the objective measure of tumor progression at study entry: that is, serial MRI demonstrating tumor growth within but no longer than the last 6 months or by serial external tape measurements independently by two observers within a six month interval.

C. Results

Stratum I: Optic Pathway / Hypothalamic Glioma Phase II Trial.
Despite efforts to encourage patient entry, only twelve patients have been entered on Stratum 1. As noted above (Methods), our original design was a randomized phase II study between IFN, CRA and etoposide (VP-16). When it became apparent that acrual was insufficient to fill all three arms, a decision was made to enter all subsequent patients on the VP-16 arm. Therefore, 8 patients received VP-16, 2 received CRA, and 3 receive INF.

Seven of the eight patients on VP-16 are evaluable for tumor response and one is lost to follow-up. One patient had a minor response to treatment (25% tumor shrinkage). Three patients progressed on therapy. Four patients, including the one patient with a minor response, remain stable, for an interval of 3 months to 26 months.

Toxicity from drug therapy in optic pathway tumor patients was minimal for all three agents. The major toxicity with CRA was chelitis and dry skin, which was treatable with emollients. One patient elected to discontinue treatment due to discomfort. Toxicity to IFN was minimal. Two patients had elevated liver enzymes (Grade 2) and one had leukopenia . One patient withdrew from interferon because of the pain associated with daily subcutaneous injection. The predominant toxicity of VP-16 was leukopenia and thrombocytopenia. No patient developed leukemia. A detailed summary of Stratum I toxicity is included in the appendix.

Stratum 2: Plexiform Neurofibroma Phase II Trial.
Fifty seven patients were enrolled on Stratum 2. Twenty eight were randomized to receive IFN and twenty nine received CRA. The clinical trial design of Stratum 2 was based on the model of a

standard phase II oncology new agent trial. By the criteria defined in the protocol, no patients had an objective response of their plexiform neurofibroma to treatment (i.e., neurofibroma shrinkage greater than 50%). However, several observations suggest that both CRA and IFV had a beneficial effect. Of the 29 patients treated with CRA, 3 had evidence of tumor shrinkage by direct measurement of the superficial component of their tumors. Of the 28 patients on IFN, 3 had evidence of tumor shrinkage by direct measurement, one had resolution of bradycardia secondary to a vagal nerve tumor, one had resolution of orthopnea, and two had relief of pain. Overall, 10 of 57 patients (17.5%) had evidence of clinical benefit. An unexpected finding was the frequency of tumor stabilization in treated patients, particularly when considering that all tumors were progressing at the time of study entry. Of the 29 patients treated on CRA, only 3 developed tumor progression, in a median follow-up time of 18 months. Of the 28 patients treated on IFN, only one (1) has progressed with a median follow-up time of 18 months.

Toxicity was manageable with both agents. The major toxicity with CRA was chelitis and dry skin, which was treatable with emollients. Although ten patients withdrew from therapy due to discomfort, they did so after six months of participation and can be evaluated for efficacy. Toxicity to IFN was minimal with elevation in liver enzymes in 2 patients and leukopenia in one. Nine patients withdrew from interferon because of the pain associated with daily subcutaneous injection, also at a median interval of 6 months. A detailed summary of Stratum I toxicity is included in the appendix.

Prognostic Factors and Progression Rates for Plexiform Neurofibroma

Stratum 2 was not designed to incorporate a control group which did not receive treatment and the rate of growth for plexiform neurofibromas is not known. Therefore, we undertook a retrospective study of the surgical experience of CHOP to identify the rate of neurofibroma growth after surgery and to identifying factors which would predict the outcome of surgery of plexiform neurofibroma. This study describes the only longitudinal data available for plexiform neurofibroma.

We identified 121 patients who underwent surgical resection of 168 individual tumors at The Children's Hospital of Philadelphia between 1974-1994. The total number of procedures was 302 (mean 1.80 per tumor, range 1-12). For the purpose of data analysis the 168 tumors are treated as individual events, as there is no data in the literature to suggest consistent biologic behavior of multiple tumors within a single patient. Data was collected from a number of sources. Data regarding the demographics of the patients was obtained from either the hospital chart, the outpatients records of the surgical services, or the Neurofibromatosis clinic chart. Data regarding the indication(s) for surgery and the extent of surgical excision was gathered from the operative note. When the primary indication for surgery was cosmetic and in the case of lesions not causing pain or dysfunction, the procedures were considered elective. Other indications were dysfunction, pain, suspicion of cancer in patients known to have NF1, and diagnostic biopsy in cases where the diagnosis of NF 1 was uncertain. Data regarding location of tumor was abstracted from the patient chart. It can often be difficult to distinguish multiple tumors in a specific region from a larger infiltrating tumor. We considered all procedures on a single body region (such as the mediastinum or a single extremity) as if the tumor in the region was a single tumor. For the purpose of analysis of location of tumor as a prognostic variable, tumors were assigned to 3 regions, head/neck/face, extremities, and trunk (including thorax, mediastinum, spine, and viscera) (table 2). For the purpose of this study gross-total resection was defined as complete removal of tumor, near total resection was defined as greater than 90% tumor removal, sub-total resection was defined as greater than 50% but less than 90% tumor removal, and biopsy was defined as less than 50% tumor removal. In all cases extent of surgical excision was determined by the operating surgeon at the time of surgery. Follow-up data regarding duration of tumor control, and surgical morbidity was assessed from outpatient charts and by patient interviews in the NF clinic or by telephone. Progression was defined as the reappearance of a completely excised tumor or the regrowth of a

partially excised tumor. Kaplan-Meier curves were calculated and logrank tests were used to compare differences between progression-free survival curves based on age, location, indication, and extent of resection. Cox regression models were used to explore predictive importance of prognostic factors for progression-free survival. Primary data analysis was conducted by using tumors as individual events, and only data concerning the first procedure was included. A confirmatory analysis was carried out using one tumor for each patient, using the patient as an independent unit of analysis and thus not needing to assume lack of consistent biological behavior of tumors within the same patient.

We found that ninety-four of the 168 tumors (56%) did not progress after the first surgical procedure; whereas, 74 tumors progressed after surgery. The median duration of follow-up in this study was 6.8 years and ranged from 2 months to 24.5 years.

For the purpose of identifying prognostic factors, only data concerning the first procedure was evaluated. Fifty of 83 children 10 years of age or less had tumor progression after the first procedure (60.2%) compared to 24 of 85 children older than 10 (31.2%) (figure 1, $p=0.0004$, log-rank). In a Cox model with age as a covariate (not grouped) older age was associated with longer interval to progression ($p<0.0001$). Location had prognostic significance as well with tumors in the extremities doing better than tumors of the head/neck/face (figure 2, $p=0.0003$, log-rank). Extent of resection also had prognostic significance Of 25 cases of complete tumor excision, only 5 progressed (20.0%). Thirty-eight tumors had a near-total resection and 15 (39.5%) of these tumor progressed. By comparison, 74 tumors had a sub-total resection (between 50% and 90%) with 33 (44.6%) progressing. Twenty-one of 31(67.7%) tumors biopsied (less than 50% resection) progressed following the first procedure. These differences are statistically significant with a $p<0.0001$ (log-rank). Furthermore, for those tumors which progressed, the median time to progression was longer for patients with more extensive resection. Biopsied tumors had a median time to progression of less than 2 years, compared to 5 years for subtotal resection, and greater than 10 years for near total.

Cox models were fit in order to identify possible prognostic factors which predicted the outcome of surgery of plexiform neurofibroma jointly. Age, as a continuous variable, extent of resection, and location were prognostic for shorter interval to progression, even when the variables are considered together. Age was prognostic even in the presence of other variables ($p=0.007$). In the presence of age, location in the extremities was prognostic for longer interval to progression than other locations; however, the difference between head/neck/face and trunk was no longer significant. In the presence of age, gross total and near total resection were not different from each other in terms of prognosis, but both were different from sub-total resection and from biopsy, which were different from each other. Finally, in a model including jointly age, extent of resection (gross-total and near-total together vs. sub-total vs. biopsy) and location (extremities vs. other locations), age remained significant ($p=.003$) and gross- and near-total resection had significantly better prognosis than sub-total ($p=0.012$) or biopsied ($p=.001$); and tumors in the extremities had significantly better prognosis than all other tumors ($p=.05$).

D. DISCUSSION

The conduct of our randomized study of VP-16, IFN, and CRA was adversely affected by three factors. First, we based our estimates of the number of patients with progressive optic pathway tumors on published studies which included clinical criteria for progression as an indication for treatment. By contrast, we required neuroimaging criteria for study entry and it is now apparent that this is a significantly smaller patient group. Second, during the past four years there has developed a growing belief that NF-1 patients with optic tumor have a more indolent clinical course than patients without NF-1. This has engendered a growing reluctance to these tumors in a potentially agressive fashion. Third, encouraging results of a clinical trial which used

carboplatinum and vincristine to treat patients with low-grade gliomas (including optic pathway tumors) was published during the first year of this trial. These findings materially reduced enthusiasm of referring physicisans for biological agents such as IFN and CRA which had not established a clinical role in the treatment of glial neoplasms.

Our randomized study in patients with NF-1 and optic pathway tumors does not indicate a high degree of clinical activity for oral VP-16, IFN, or CRA. However, the small number of patients enrolled in this trial does not permit an estimation of activity. Nor does it allow us to conclude that these agents are ineffective against optic pathway tumors in NF-1 patients. Rather, we can concluded that study of these agents, either individually or in combination, requires a clear demonstration of their clinical value in non-NF-1 patients before the NF-1 clinical community is willing to proceed with a treatment study of this tumor.

By contrast, our study of IFN and CRA in NF-1 patients with plexiform neurofibromas provide potentially important insights into the design and conduct of future NF-1 clinical trials. With respect to clinical trial design, it is clear to us that standard phase II clinical trial designs used for the treatment of malignant solid tumors is not a good model for a trial of PN in NF 1. Unlike most cancers where persistance of residual tumor inevitably leads to tumor progression and patient death, plexiform neurofibromas in NF-1 are not necessarily fatal and prolonged tumor control is potentially a acceptable outcome. Many of the patients on the first study report that treatment has resulted in the longest period of stable disease, and for some the longest interval between surgeries. The definition of study endpoints is a critical element in clinical trial design and, in our original study design, we did not anticipate that there would be a large number of treated patients who would not have tumor progression during the period of study.

Assessment of PN response to treatment is much more complex than for most solid tumors in children or adults. It is likely that PNs undergo spontaneous periods of queiscence followed by rapid growth. These tumors are irregular in shape and it is technically difficult to position the patients on the MRI gantry in an identical fashion for serial exams. Subtle changes are difficult to appreciate. Therefore, even minor responses (25 - 50% tumor shrinkage) which have been frequently reported as responses in optic pathway tumors, another slow growing neoplasm common in NF 1, would be difficult to assess in PNs.

There are insufficient data regarding the rate of progression of PN in the untreated state, and little information outside of our retrospective experience at CHOP regarding the prognostic factors that predict progression. In a single arm phase II study, the investigator needs to know what the expected outcome would be if the patient were not to be treated. In the case of patients with recurrent cancer, the expected outcome is tumor growth and death. In patients with plexiform neurofibroma, there are no solid data for patterns of growth in untreated patients. The data gleaned from the surgical experience at CHOP provide for some comparison, but patient selection for surgery (over a 20 year period) was likely to be subjective and variable, and not necessarily comparable to patients who will enroll on a treatment study. The only acceptable solution is a design that includes an untreated control group. Based on our experience in patients with solid tumors, and our explicit discussions with physicians in our multi-institutional consortium, any randomization of NF-1 patients with progressive PNs to a non-treatment, observation only arm of a clinical trial will be difficult for both patients and physicians to support. By contrast, there is great interest in the clinical community and in NF-1 patients with PNs for new treatment trials. Interest in our study was high both among physician and patients leading to much more rapid accrual than we originally projected. Although we proposed to enroll 30 patients in 3 years on the first study, we did so in 10 months. This rapid accrual was achieved despite having only the eastern United States well represented by the study centers.

The clinical responses and the evidence of tumor stabilization observed in our randomized study of CRA and IFN in NF-1 patients with plexiform neurofibromas are important in that they suggest

that it may be possible to halt growth of PNs with medical therapy. If so, this could have a major impact on patient management. Despite this, a number of patients elected to discontinue therapy early. It is clear to us that the factors which motivate a patient with life-threatening cancer to persist with treatment despite some discomforts are significantly greater those for non-life-threatening plexiform neurofibromas and this consideration must be accounted for in subsequent clinical trials.

When faced with a patient with a progressive plexiform neurofibroma, who is not a suitable candidate for surgery because of age, location, or the likelihood of radical resection, the treating physician may elect use medical therapy to delay surgery until the patient is older and more likely to benefit with long term tumor control. In our study, the treatment toxicity was modest, and where present, reversible. However, when all the prognostic factors in our retrospective study are combined, a cohort of NF-1 patients becomes apparent who are unlikely to have long term benefit following surgery; i.e. children less than ten year of age who have lesions of the head, neck, face, and trunk. Not surprisingly, many will not have a complete resection. For these patients there is a clear need for medical therapy.

Results from our multi-institutional clinical trials in patients with NF-1 suggest that 13-cis-retinoic acid and interferon a-2a may alter the growth patterns of these tumors. In non-neoplastic tumors there are two potential benefits from medical therapy. Obviously any medical therapy which can cause regression would be a tremendous asset to the patient with plexiform neurofibroma. Such a therapy could render the surgically inoperable lesion completely resectable. A more modest goal would be to find an agent which is able to arrest tumor growth. This would allow a delay in therapy for the youngest patients until an age at which tumor recurrence may be less likely. It is not yet known whether arresting growth until beyond age 10 will change the long-term outcome of surgery or whether there is a biologic difference in tumors which present and progress at younger ages. Further efforts in this direction will be required to compliment the surgical approach.

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Appendix
1

Brainstem tumors							
Army #	**DOB**	**Age NF1 dx**	**Age BST dx**	**Age Dx to 1/97**	**sex**	**other tumors**	
401	8/8/89	19 mos	33 mos	58 mos	M	OPT	
402	1/2/86	94 mos	94 mos	56 mos	F	No	
403	2/7/81	12 mos	161 mos	31 mos	F	OPT	
404	1/31/87	18 mos	89 mos	19 mos	M	OPT	
405	11/19/83	12 mos	134 mos	24 mos	F	OPT	
406	3/25/90	12 mos	63 mos	19 mos	F	OPT	
407	7/10/80	12 mos	182 mos	15 mos	M	OPT	
408	3/8/89	29 mos	32 mos	19 mos	M	No	
409	9/1/94	11 mos	11 mos	14 mos	M	OPT	
410	2/27/86	12 mos	12 mos	117 mos	F	OPT	
#10	**ranges**	**11-94 mos**	**11-182**	**14-117**	**5 F/5M**	**8 OPT**	
	means	**23.1**	**81.1**	**37.2**			
Newly diagnosed optic pathway tumors							
301	12/12/90	10 mos	32 mos	42 mos	M	No	
302	8/13/88	12 mos	64 mos	38 mos	M	No	
303	12/18/93	18 mos	26 mos	12 mos	M	BST	
304	7/26/93	5 mos	26 mos	17 mos	M	No	
305	4/2/95	14 mos	14 mos	11 mos	F	No	
306	3/30/92	12 mos	48 mos	10 mos	M	No	
307	10/6/92	12 mos	37 mos	14 mos	M	No	
308	11/30/88	20 mos	91 mos	9 mos	M	No	
309	3/4/92	37 mos	37 mos	21 mos	F	No	
310	7/8/74	84 mos	249 mos	23 mos	M	No	
311	1/21/94	2 mos	13 mos	23 mos	F	No	
#11	**ranges**	**2 - 84.0**	**13-249**	**9-42 mos**	**3F/8M**	**1 BST**	
	means	**20.5**	**55.7**	**20**			
Progressive optic pathway tumor							progression date
501	11/27/88	36 mos	36 mos	60 mos	F	C-spine	
502	8/6/88	0 mos	70 mos	69 mos	M	chest	
503	4/10/72	60 mos	60 mos	117 mos	M	No	
309/504	3/4/92	37 mos	37 mos	21 mos	F	No	3/23/95
310/505	7/8/74	84 mos	249 mos	23 mos	M	No	4/28/95
506	10/11/93	17 mos	17 mos	21 mos	F	No	
311/507	1/21/94	2 mos	13 mos	23 mos	F	No	9/28/95
#7	**ranges**	**0-84**	**13-249**	**21-117 mos**	**4F/3M**	**no other BT**	
	means	**33.7**	**68.8**	**47.7**			

Appendix 2

	R Frontal	L frontal	R Parietal	L Parietal	R Temporal	L Temporal	R Occipital	L Occipital
401	3	3	3	3	2	2	3	3
402	3	3	3	3	2.5	2.2	3	3
403	3	3	2	2	1.8	1.8	1.5	2
404	3	3	2.5	2.5	1.8	1.8	2.5	2.5
405	3	3	3	3	2	2	3	3
406	3	3	3	3	1.7	2.3	3	3
407	2.5	2	2	2	1.8	2	2	2
408	3	3	3	3	2.2	2.2	2.5	2.5
409	3	3	3	3	2.5	2.5	3	3
410	3	3	3	3	2.2	2.2	3	3
301	3	3	3	3	2	2.5	2.5	3
302	3	3	3	3	2.3	2.2	3	3
303	3	3	3	3	2.5	2.5	3	3
304	3	3	3	3	2.3	2.3	2.5	2.5
305	2	2	2	2	1.5	1.5	2	2
307	3	3	3	3	2.5	2.5	3	3
308	3	3	3	3	2.3	2.3	3	3
501	3	3	3	3	2	2.3	3	2
502	2	2	2	3	1.5	2.5	2	3
503	3	3	2.5	2	2.7	1.5	2.5	2
504	3	3	3	2	2.5	2.5	2.5	2
505	3	3	3	3	2.6	2.6	3	3
506	3	3	3	3	2.3	2.3	3	3
507	3	3	3	3	2	2.3	3	3
mean	**2.89**	**2.88**	**2.79**	**2.77**	**2.15**	**2.2**	**2.69**	**2.69**
means meaned		**2.89**		**2.78**		**2.18**		**2.69**

		R Frontal	L frontal	R Parietal	L Parietal	R Temporal	L Temporal	R Occipital	L Occipital
	402	3	3	3	3	2.2	2.2	3	3
	403	3	3	3	3	2.7	2.7	2	2
	404	3	3	3	3	2.2	2.2	2	2
	407	3	3	1.5	1.5	1.5	1.5	1.5	1.5
	301	2.5	2	3	3	2.2	2.2	3	3
	302	3	3	3	3	2.5	2.5	3	3
	501	3	3	3	3	2.2	2.3	3	3
	502	2	3	2	3	1.7	2.5	2.5	2.5
	504	3	2.5	2.5	2	1.7	2	3	3
	means	**2.83**	**2.83**	**2.67**	**2.72**	**2.1**	**2.23**	**2.56**	**2.56**
means meaned			**2.83**		**2.7**		**2.17**		**2.56**

R VC	L VC	R Caudate	L caudate	RGP	L GP	R Thalamus	L Thalmaus	
2	2	3	3	3	3	1.5	1.5	
2	2	3	3	3	3	2	1.5	
1.5	2	3	3	3	3	1.5	1.5	
1.5	1.5	3	3	3	3	1.5	1.5	
2	2.5	3	2	2	2	2	2	
2	3	3	2	3	2	1.5	1.5	
1.5	2	2	1.5	2	2	2	2	
1.5	2	3	3	3	3	1.5	1.5	
2	2	2	3	3	3	1.5	1.5	
2	2.5	3	3	3	3	2	1.5	
2.5	2.5	3	3	2.5	2.5	1.5	1.5	
2	2	3	2	3	2	1.5	1.5	
3	3	2	2	3	3	2	2	
1.5	2	3	3	3	3	1	1	
1.5	1.5	2	2	3	3	1	1.5	
3	3	3	3	3	3	1.5	1.5	
2	2	3	3	3	3	1.5	1.5	
3	3	3	3	3	3	2	2	
1	3	3	2	3	2	2.5	2.5	
2	1.5	3	3	3	3	3	2	
2.5	2	3	3	3	3	1.5	1.5	
1.5	2	3	3	3	3	5	2.5	
3	2	4	4	4	4	2	2	
3	3	3	3	3	3	1.5	1.5	
2.06	**2.25**	**2.83**	**2.56**	**2.98**	**2.94**	**2**	**1.69**	
	2.16		**2.7**		**2.96**		**1.85**	

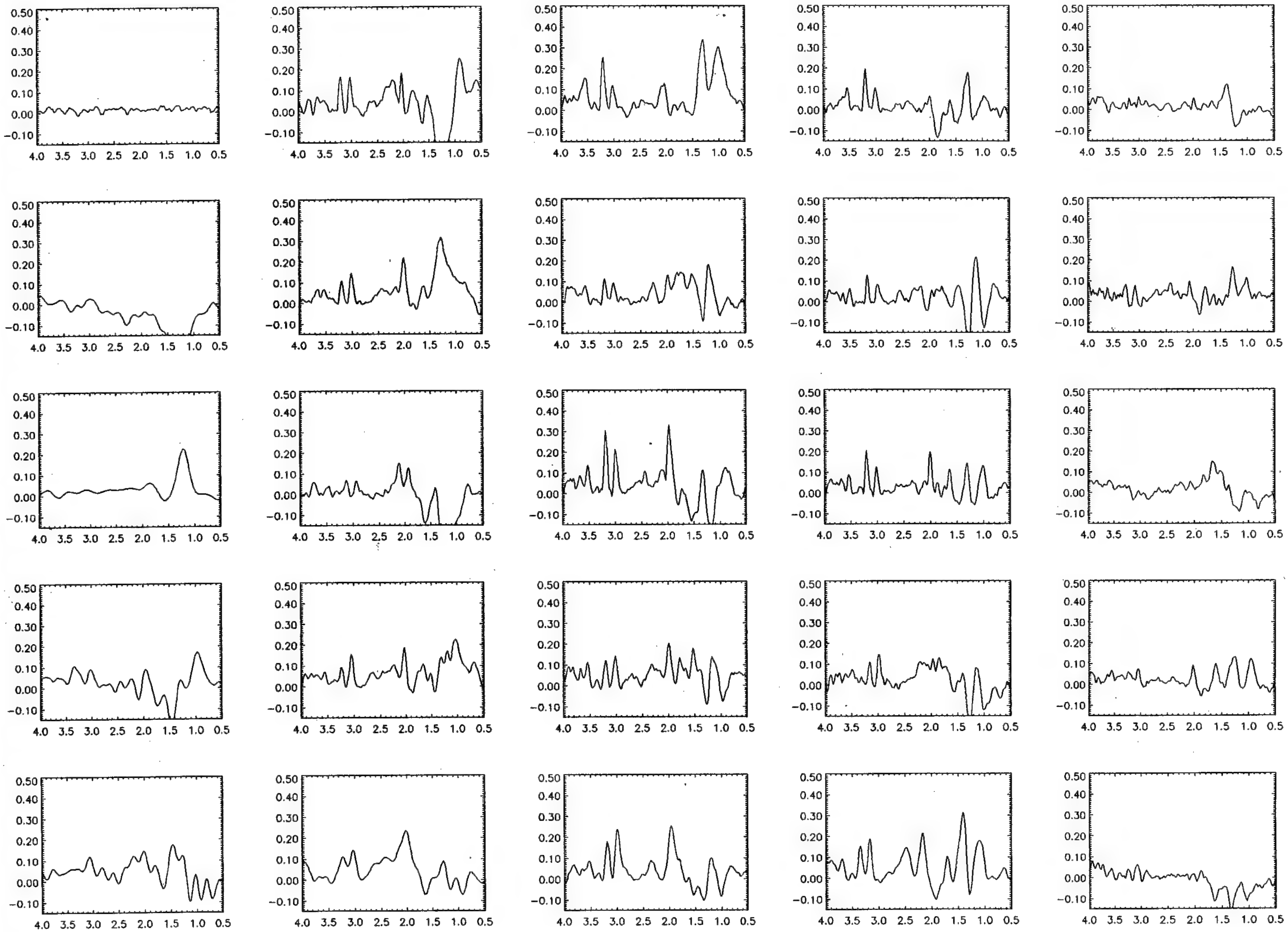
R VC	L VC	R Caudate	L caudate	R GP	L GP	R Thalamus	_ Thalmaus	
2.5	2.5	3	3	3	3	1	1	
2	3	3	3	3	3	3	3	
1.5	1.5	2.5	2.5	3	3	1.5	1.5	
2.5	2.5	2	2	2	2	2	2	
2	3	3	3	3	3	3	2	
2	2	3	3	3	3	1.5	1.5	
2.5	2.5	3	3	3	3	2	2	
1.5	2	3	3	2	2	2	2	
1.5	1.5	3	3	3	3	1.5	1.5	
2	**2.28**	**2.83**	**2.83**	**2.78**	**2.78**	**1.94**	**1.83**	
	2.14		**2.83**		**2.78**		**1.89**	

Appendix
3

NF-1 MRS data summary									
Patient ID #		CSI array size	5x5	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	Nov-27-88		y = 70 mm						
Date of MRS	Dec-29-94		z = 12 mm						
Head circumference		ROI position:	Px = 0.4 mm						
tumor location	optoc chiasm		Py = -5.6 mm						
control location			Pz = 3.9 mm						
Date of MRS processing	Jun-28-95	voxel shift:	DPx = -2 mm						
			DPy = -2 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	P(0-25%)		P (25-50%)	1.92	1.16	3.67	9.01	2.24	1.59
1, 3 (3)	Y (75-100%)		P (0-25%)	4.37	1.9	3.29	0.52	3.51	3.43
1, 4 (4)	P(0-25%)		P (25-50%)	3.05	1.23	2.29	0	5.52	0
2, 2 (7)	P (0-25%)		P (0-25%)	4.09	0.8	3.55	0.5	7.33	5.03
2, 3 (8)	P (0-25%)		P (0-25%)	1.35	0.75	2.38	5.09	0	3.67
2, 4 (9)	P (0-25%)		P (0-25%)	0.66	0.67	2.02	3.73	0.13	0
3, 2 (12)	N		P (0-25%)	0.61	0.54	1.48	9.11	0	1.87
3, 3 (13)	N		N	2.04	2.13	4.82	2.39	6.05	7.91
3, 4 (14)	N		P (0-25%)	1.22	1.26	2.29	0.12	4.37	3.4
4, 2 (17)	N		P (0-25%)	1.7	0.81	3.86	3.93	4.74	3.13
4, 3 (18)	N		P (0-25%)	1.82	0.88	3.45	6.12	1.37	4.38
4, 4 (19)	N		P (25-50%)	1.92	0.72	3.29	8.96	0	2.59
5, 2 (22)	N		N	0.36	1.76	5.2	3.59	9.14	6.5
5, 3 (23)	N		N	2.17	1.57	8.11	0	5.75	9.65
5, 4 (24)	N		P (0-25%)	1.73	1.31	4.62	0.07	10.63	4.67

94-12-29

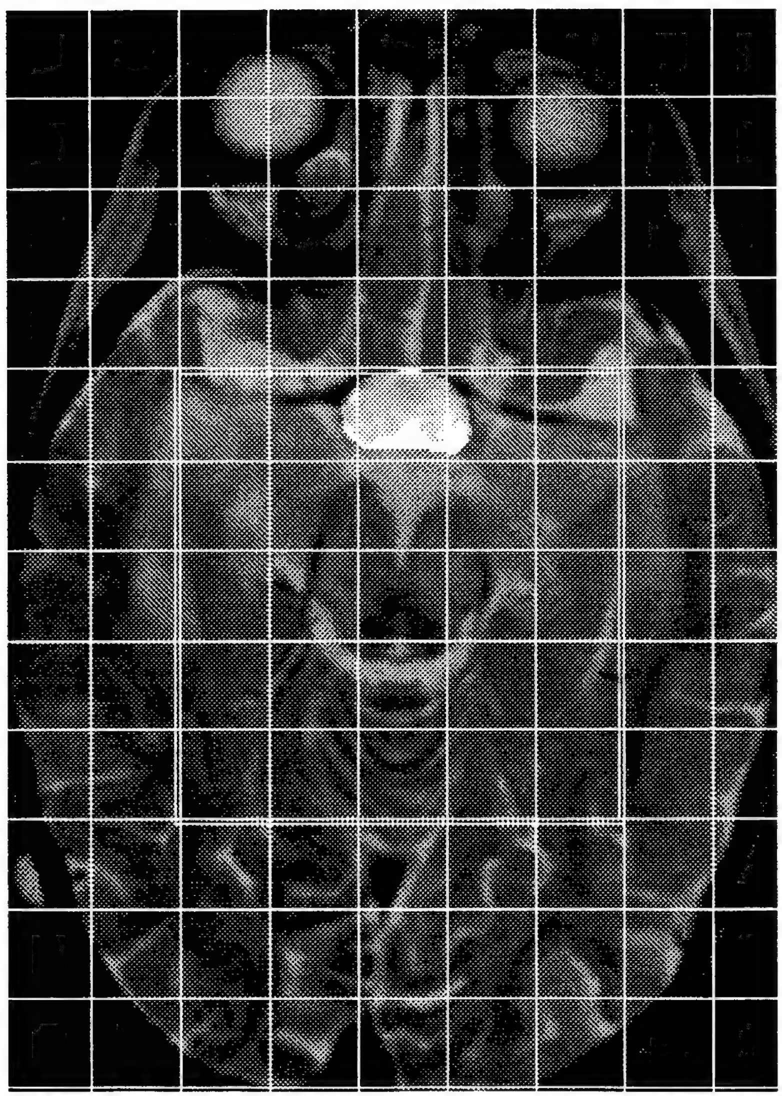
12/29/94



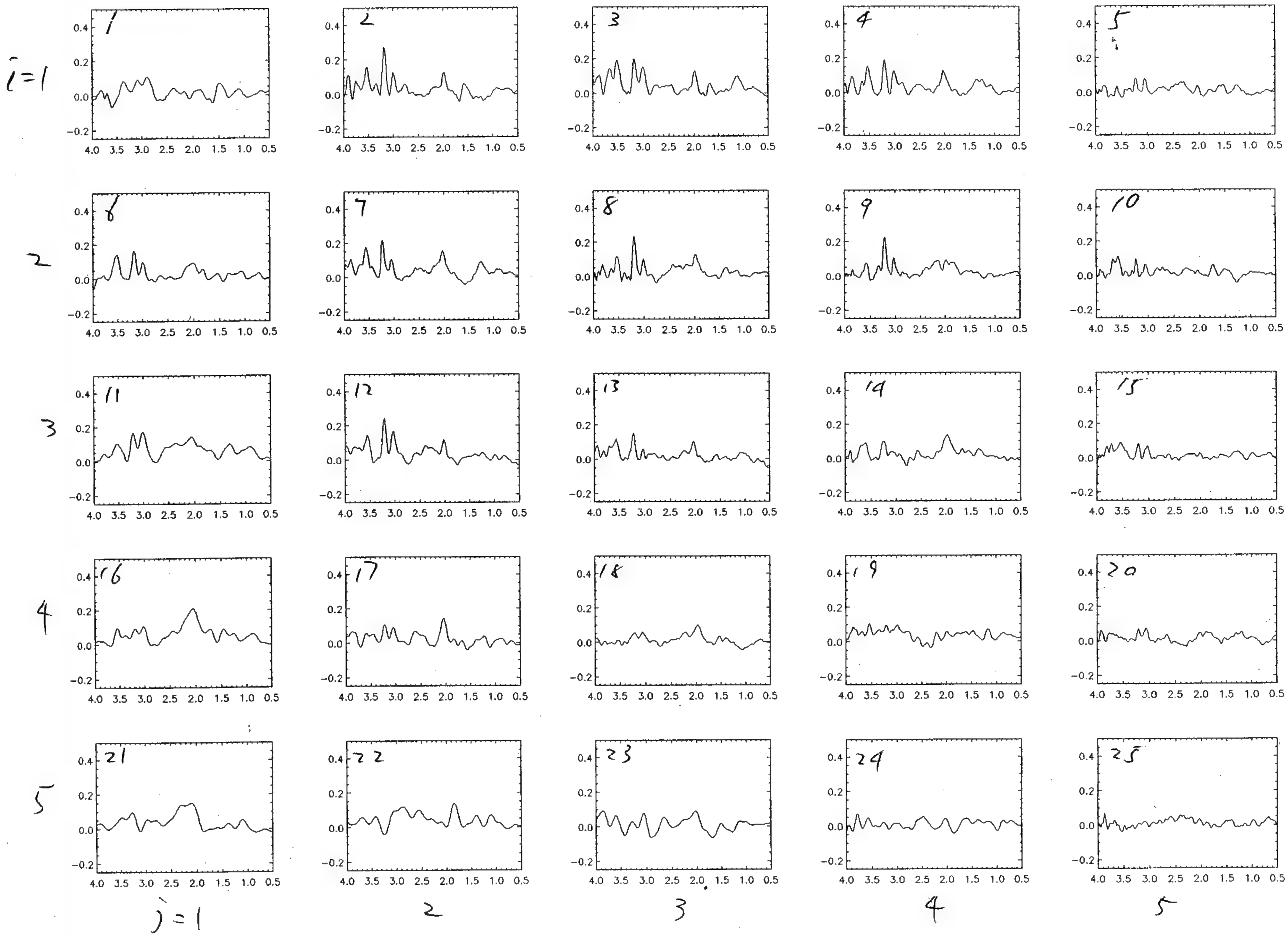
NF-1 MRS data summary									
Patient ID #		CSI array size	5x5	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	Oct-11-93		y = 70 mm						
Date of MRS	Jan-18-96		z = 15 mm						
Head circumference		ROI position:	Px = -4.5 mm						
tumor location			Py = -2.9 mm						
control location			Pz = 0.0 mm						
Date of MRS processing	Jan-23-96	voxel shift:	DPx = 0 mm						
			DPy = -5 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	P(0-25%)		P(0-25%)	3.37	2.17	2.97	4.46	0	3.78
1, 3 (3)	P(50-75%)		P(25-50%)	4.84	1.69	5.31	0	2.26	3.36
1, 4 (4)	P(0-25%)		P(0-25%)	2.57	1.51	4.64	0	5	4.55
2, 2 (7)	N(UBO?)		N	4.63	1.72	3.03	0.89	4.93	4.77
2, 3 (8)	P(0-25%)		P(25-50%)	2.03	1.69	2.19	1.74	5.74	3.57
2, 4 (9)	N(UBO?)		N	1.25	1.82	2.26	6.59	0	1.29
3, 2 (12)	N(UBO?)		N	3.53	2.06	5.81	1.35	6.35	2.3
3, 3 (13)	N(UBO?)		N	3.15	1.18	1	4.14	0	2.33
3, 4 (14)	N(UBO?)		N	2.62	0.93	2.2	0	2.66	4.12
4, 2 (17)	N		N	1.51	1.03	2.88	0	6.22	5.7
4, 3 (18)	N		P(25-50%)	0	0.67	1.98	3.67	0	2.99

1-18-96

shift $\begin{cases} \delta x=0 \\ \delta y=5 \end{cases}$



1-18-96 shift $\Delta y = -5$ $\Delta x = 0.$



NF-1 MRS data summary									
Patient ID #		CSI array size	5x5	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	Jan-21-94		y = 70 mm						
Date of MRS	Sep-28-95		z = 12 mm						
Head circumference		ROI position:	Px = 8.2 mm						
tumor location	optoc chiasm		Py = -7.5 mm						
control location			Pz = -2.0 mm						
Date of MRS processing	Dec-13-95	voxel shift:	DPx = -1 mm						
			DPy = -6 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	N		P (0-25%)	2.334	3.794	3.81	3.068	3.494	3.714
1, 3 (3)	Y (75-100%)		P (0-25%)	4.028	1.838	1.8	2.788	0	1.222
1, 4 (4)	N		P (25-50%)	2.066	1.006	3.262	2.244	0	1.796
2, 2 (7)	N		P (0-25%)	0	2.538	4.03	2.938	0	3.43
2, 3 (8)	N		P (25-50%)	2.542	1.512	3.5	1.2	1.466	2.794
2, 4 (9)	N		P (0-25%)	1.718	1.098	3.724	2.372	1.076	2.954
3, 2 (12)	N		P (0-25%)	4.36	1.02	2.71	0	4.556	2.864
3, 3 (13)	N		N	0.37	1.308	2.312	5.538	0.968	6.052
3, 4 (14)	N		P (0-25%)	1.056	0.492	2.854	2.08	3.432	4.206
4, 4 (19)	N		N	0.98	1.046	2.198	1.724	4.804	3.696

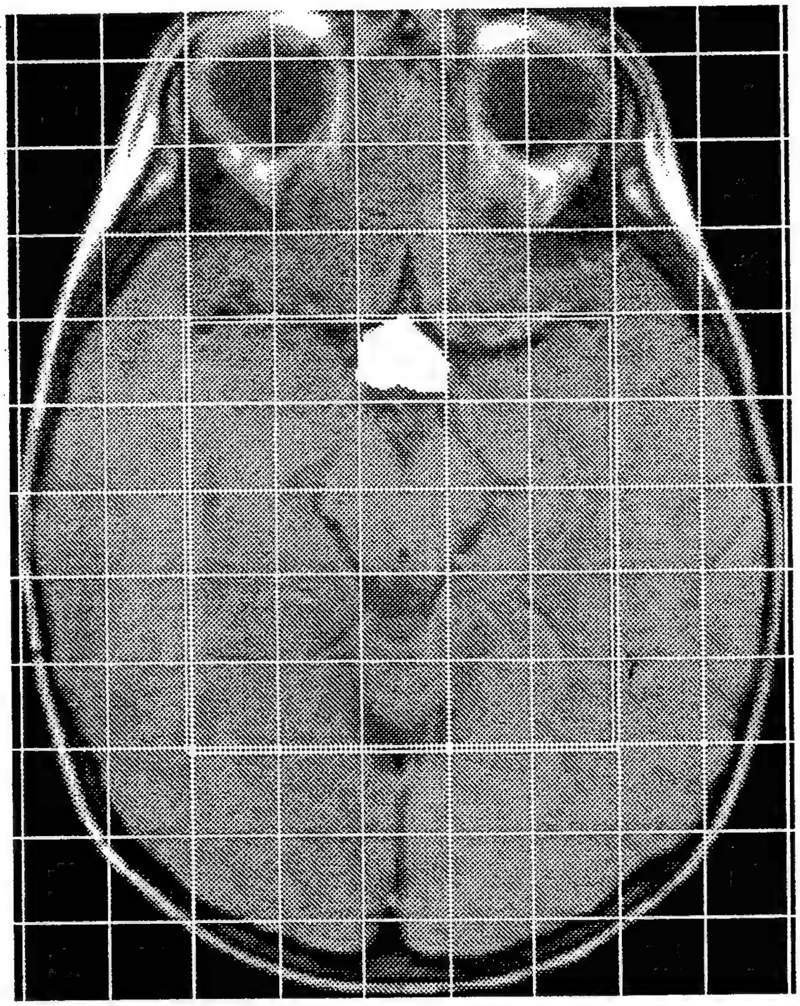
1ed

7.28.96

9-28-95

processed 12-13-95

$D = \begin{cases} 70 \\ 70 \\ 1.2 \end{cases}$ $p = \begin{cases} 8.2 \\ -7.5 \\ -2.0 \end{cases}$ shift $\begin{cases} \Delta x = -1 \\ \Delta y = -6 \end{cases}$



7-28-73

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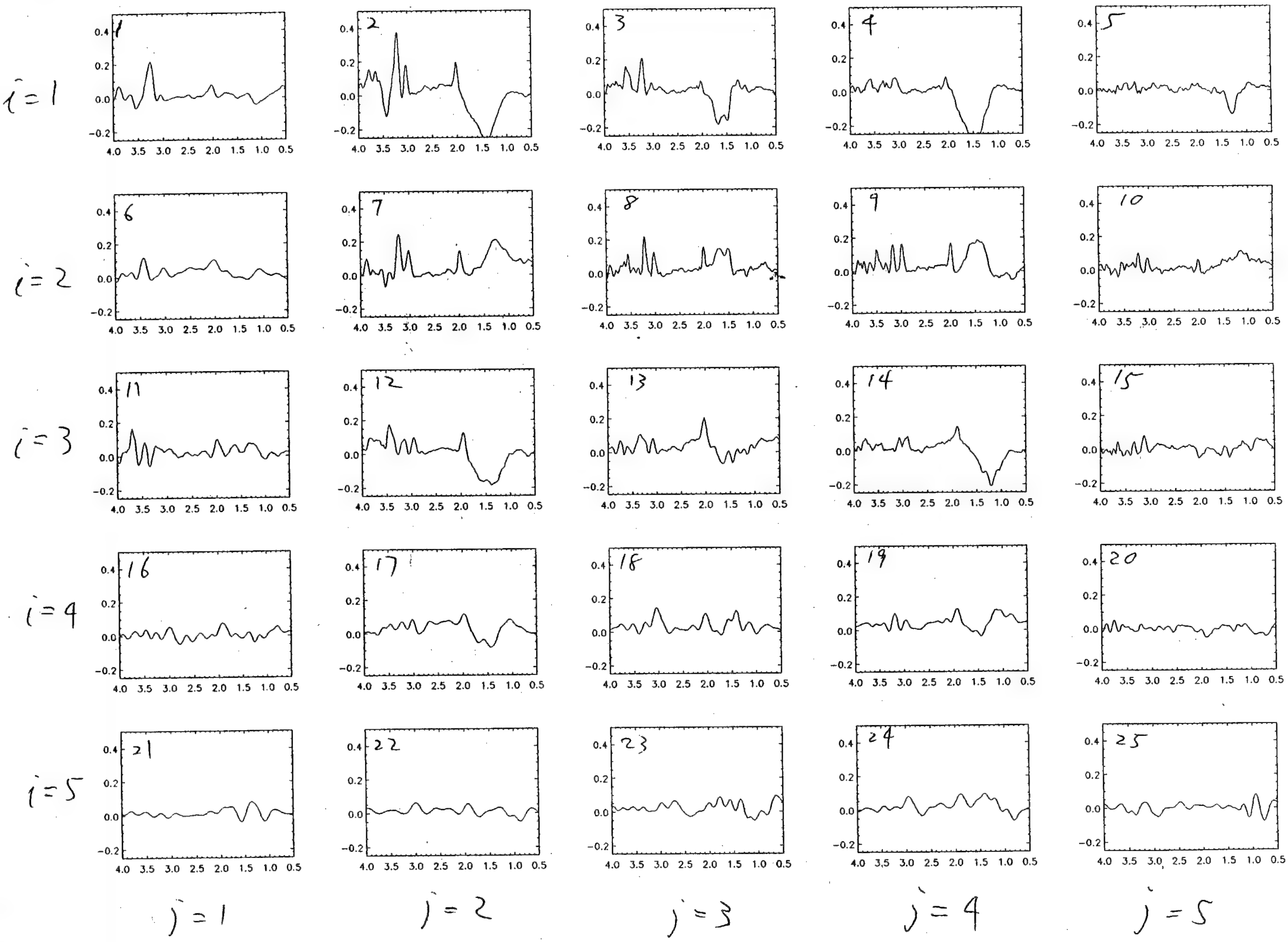

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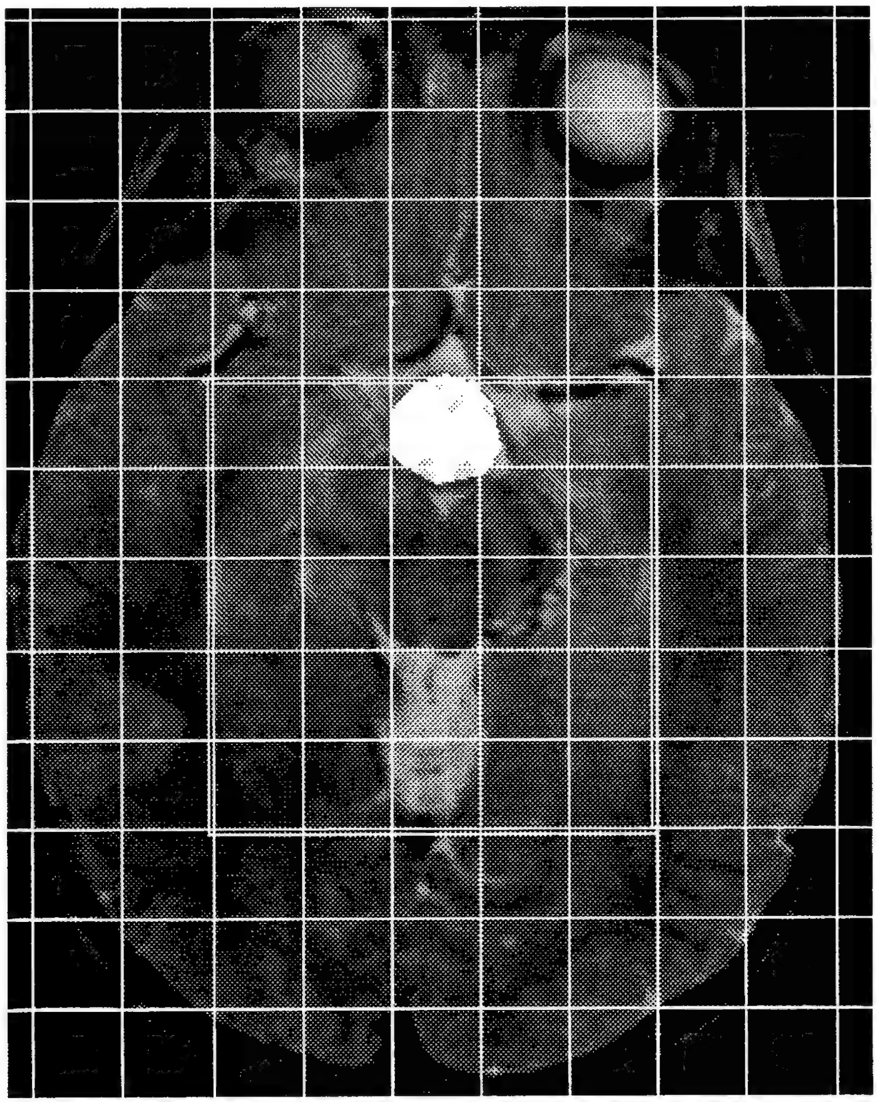
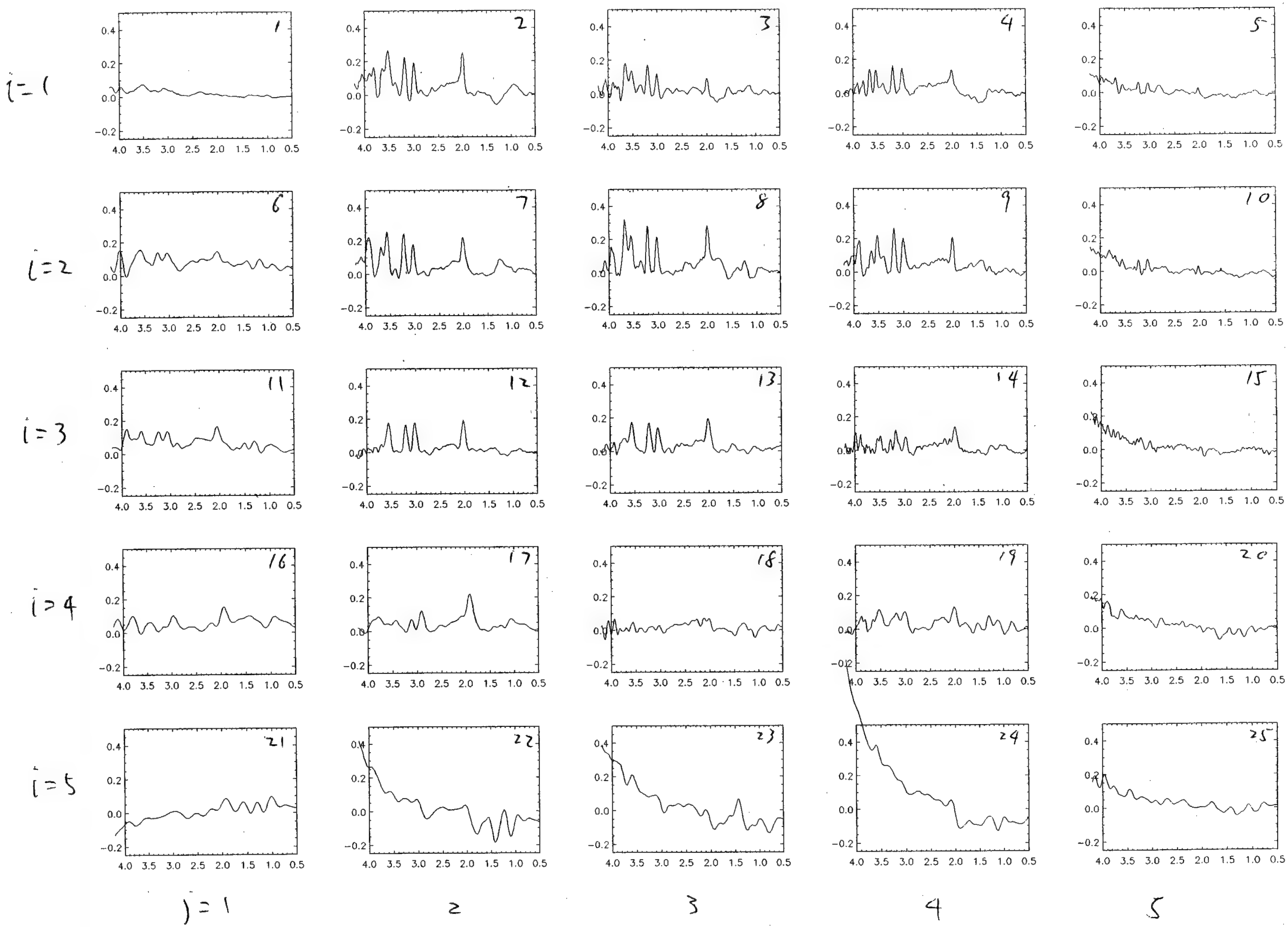
NF-1 MRS data summary											
Patient ID #		CSI array size	5x5	MR Scanner:	SP						
MR #		ROI dimension:	x = 70 mm								
Date of birth	Jan-21-94		y = 70 mm								
Date of MRS	Jul-26-96		z = 15 mm								
Head circumference		ROI position:	Px = 0.4 mm								
tumor location			Py = -3.9 mm								
control location			Pz = 5.9 mm								
Date of MRS processing	Sept-8-96	voxel shift:	DPx = 1.0 mm								
			DPy = -8.0 mm								
metabolite levels											
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	NAA	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)								
1, 2 (2)	N		N	4.37	1.80	3.05	4.61	3.24	4.78	0.57	0.89
1, 3 (3)	P(75-100%)		P(0-25%)	2.77	1.21	2.57	1.86	0.37	1.26	0.71	0.35
1, 4 (4)	P(0-25%)		P(0-25%)	1.87	1.10	3.14	2.93	3.70	2.85	0.95	0.86
2, 2 (7)	N		N	4.76	2.01	4.19	4.90	1.58	5.44	0.70	0.90
2, 3 (8)	P(0-25%)		P(0-25%)	3.84	1.92	4.79	2.56	3.60	8.13	0.83	1.41
2, 4 (9)	N		N	4.15	2.05	5.48	3.83	4.23	3.05	0.89	0.50
3, 2 (12)	N		P(0-25%)	3.78	1.45	4.73	2.11	2.58	4.26	1.09	0.98
3, 3 (13)	N		N	3.70	1.47	3.59	3.35	2.52	4.87	0.82	1.11
3, 4 (14)	N		P(0-25%)	1.60	0.93	1.75	3.21	2.03	3.02	0.63	1.08
4, 2 (17)	N		N	1.16	0.67	4.13	4.41	2.33	9.08	2.05	4.51

7-26-96

ΔX = 1
ΔY = -8

Processing
9-8-96





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4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5

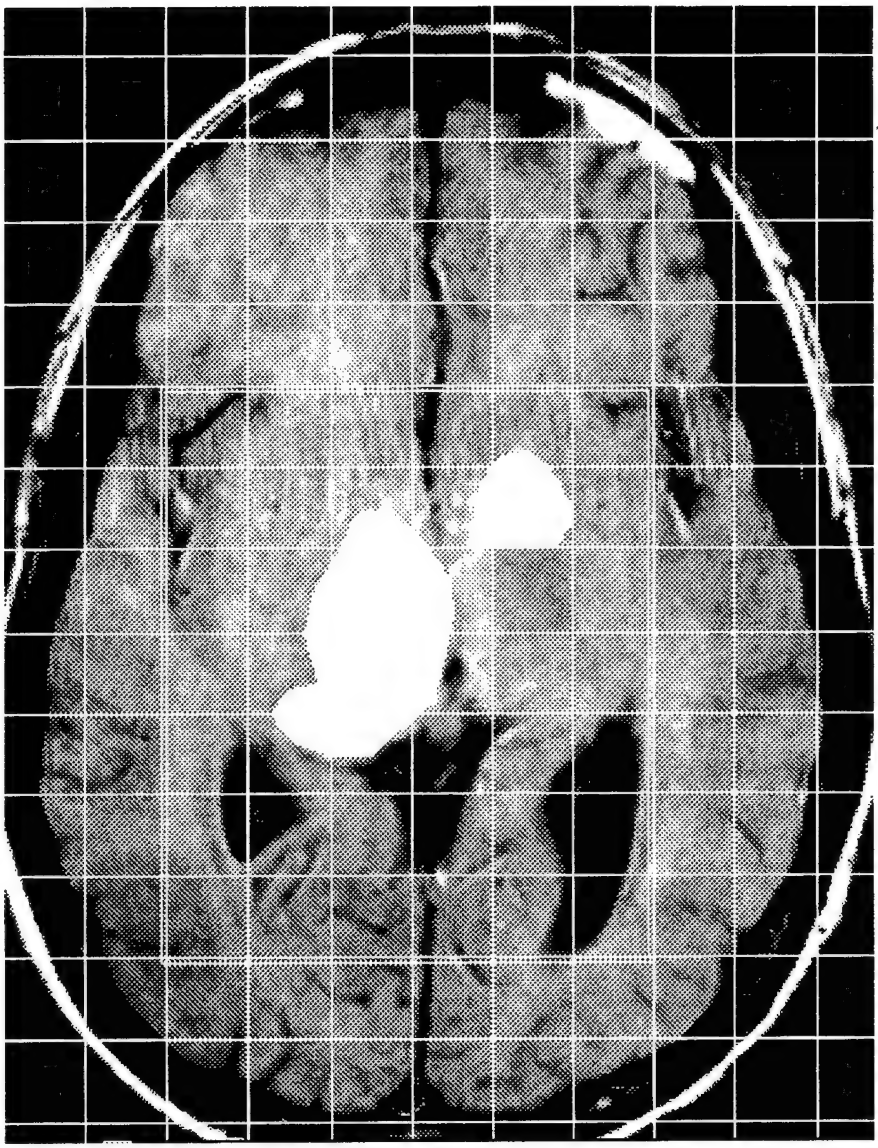
NF-1 MRS data summary									
Patient ID #		CSI array size	6x7	MR Scanner:	SP				
MR #		ROI dimension:	x = 84 mm						
Date of birth	Jul-8-74		y = 98 mm						
Date of MRS	Apr-26-95		z = 15 mm						
Head circumference		ROI position:	Px = -1.4 mm						
tumor location			Py = -5.0 mm						
control location			Pz = 5.9 mm						
Date of MRS processing	Jan-24-96	voxel shift:	DPx = 4 mm	Dimx=0					
			DPy = -6.5 mm	Dimy=0					
Metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
4, 2 (20)	P(25-50%)		N	2.43221058	2.62589781	7.22203717			
4, 3 (21)	Y		N	6.23293501	2.56244883	3.30894007			
4, 4 (22)	P(25-50%)		P (0-25%)	2.09698205	1.79781646	4.75360056			
4, 5 (23)	N		N	1.88541237	0.60324603	4.1332706			
5, 2 (26)	P(0-25%)		P(0-25%)	2.9297983	1.75717043	7.30031508			
5, 3 (27)	P(25-50%)		P(25-50%)	3.7993242	2.20681856	6.60711693			
5, 4 (28)	N		P(75-100%)	1.88021071	1.20264565	6.03133565			
5, 5 (29)	N		P(0-25%)	3.72421227	1.74703704	7.93744781			
6, 2 (32)	N		P(25-50%)	2.35711552	2.13531123	8.70200707			
6, 3 (33)	N		P(0-25%)	6.53390009	2.27643079	8.46115628			
6, 4 (34)	N		P(50-75%)	4.5206113	2.59638051	9.61969188			
6, 5 (35)	N		P(0--25%)	2.76797334	2.21523681	8.57266857			
7, 3 (39)	N		N	3.27483407	1.52919726	6.48030896			
7, 4 (40)	N		N	1.25634925	1.69980599	8.11942146			
7, 5 (41)	N		P(0-25%)	1.49020451	2.4804426	6.51478049			

4-28-95

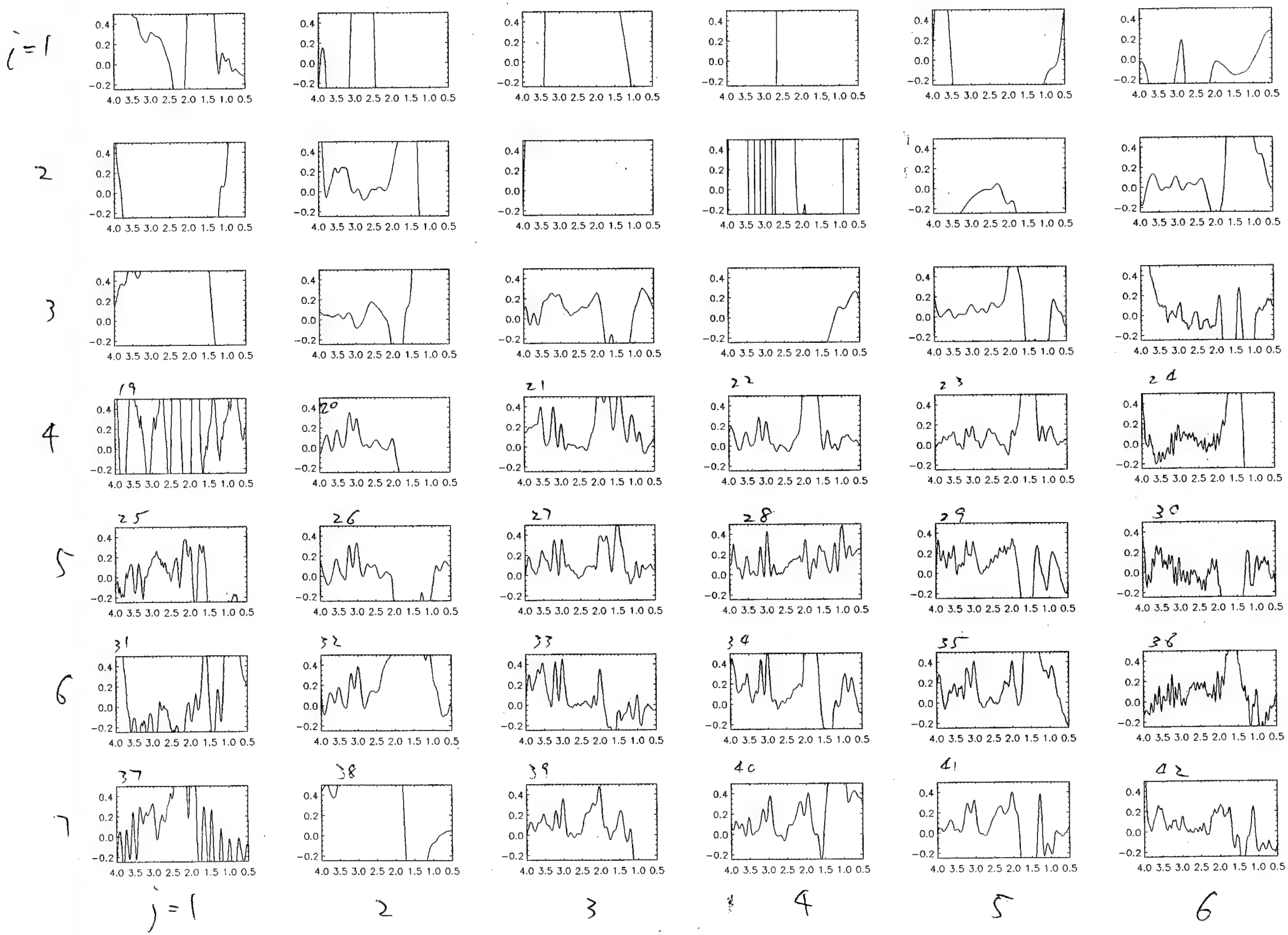
Processed 1-24-96

$\Delta x = 4$

$\Delta y = -6.5$



4-26-75.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NF-1 MRS data summary									
Patient ID #		CSI array size	6x7	MR Scanner:	SP				
MR #		ROI dimension:	x = 84 mm						
Date of birth	Jul-8-74		y = 98 mm						
Date of MRS	Apr-26-95		z = 15 mm						
Head circumference		ROI position:	Px = -1.4 mm						
tumor location			Py = -5.0 mm						
control location			Pz = 5.9 mm						
Date of MRS processing	Jan-24-96	voxel shift:	DPx = 4 mm	Dimx=0					
			DPy = -6.5 mm	Dimy=0					
Metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
4, 2 (20)	P(25-50%)		N	2.43221058	2.62589781	7.22203717			
4, 3 (21)	Y		N	6.23293501	2.56244883	3.30894007			
4, 4 (22)	P(25-50%)		P (0-25%)	2.09698205	1.79781646	4.75360056			
4, 5 (23)	N		N	1.88541237	0.60324603	4.1332706			
5, 2 (26)	P(0-25%)		P(0-25%)	2.9297983	1.75717043	7.30031508			
5, 3 (27)	P(25-50%)		P(25-50%)	3.7993242	2.20681856	6.60711693			
5, 4 (28)	N		P(75-100%)	1.88021071	1.20264565	6.03133565			
5, 5 (29)	N		P(0-25%)	3.72421227	1.74703704	7.93744781			
6, 2 (32)	N		P(25-50%)	2.35711552	2.13531123	8.70200707			
6, 3 (33)	N		P(0-25%)	6.53390009	2.27643079	8.46115628			
6, 4 (34)	N		P(50-75%)	4.5206113	2.59638051	9.61969188			
6, 5 (35)	N		P(0--25%)	2.76797334	2.21523681	8.57266857			
7, 3 (39)	N		N	3.27483407	1.52919726	6.48030896			
7, 4 (40)	N		N	1.25634925	1.69980599	8.11942146			
7, 5 (41)	N		P(0-25%)	1.49020451	2.4804426	6.51478049			

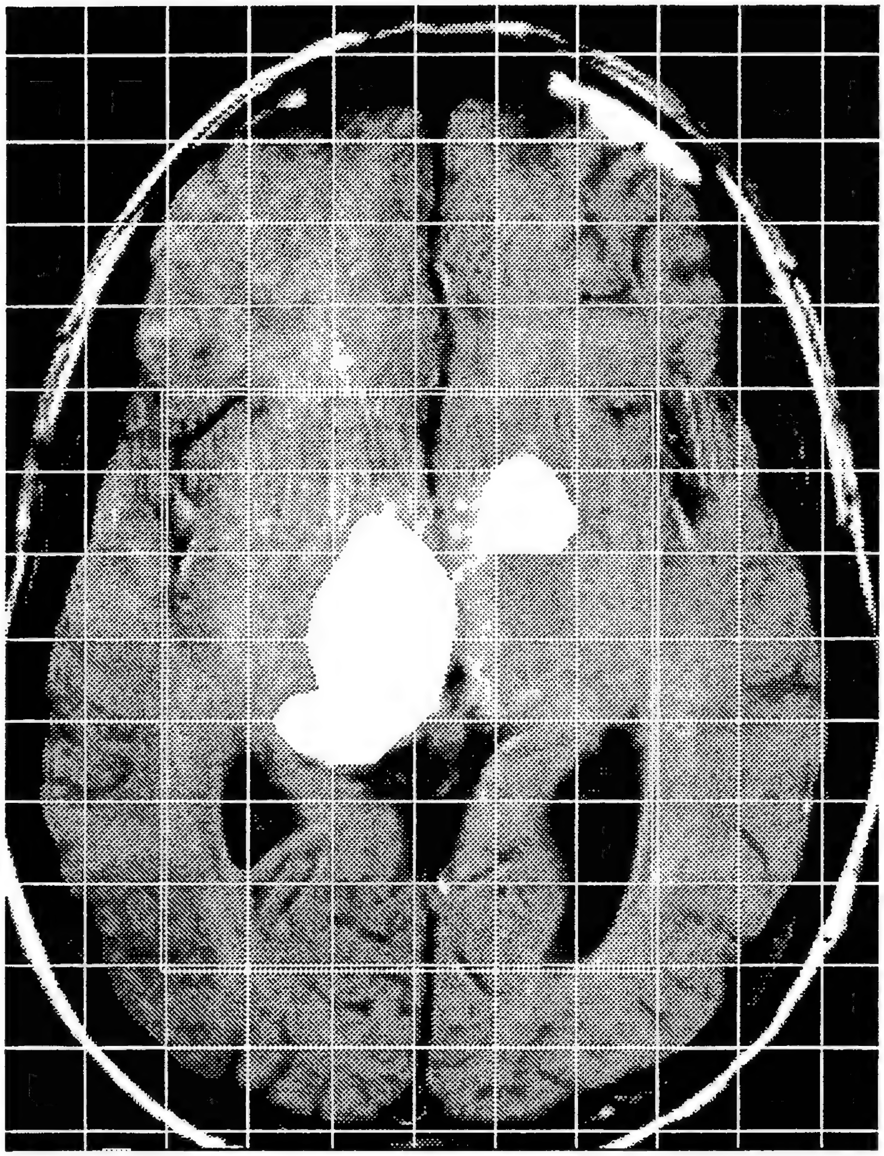
entered SW

4-28-95

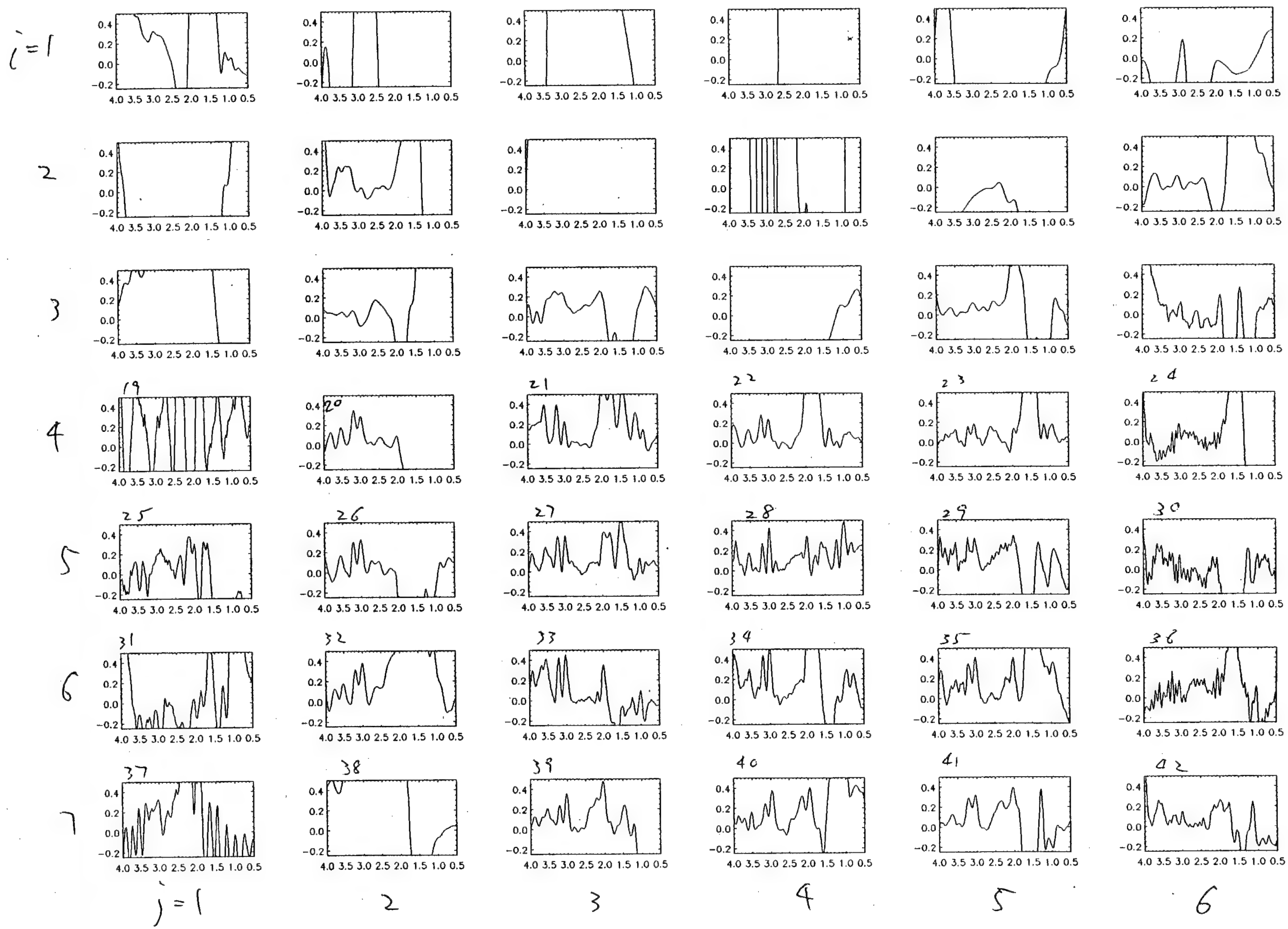
Processed 1-24-96

$\delta x = 4$

$\delta y = -6.5$



4-26-95.



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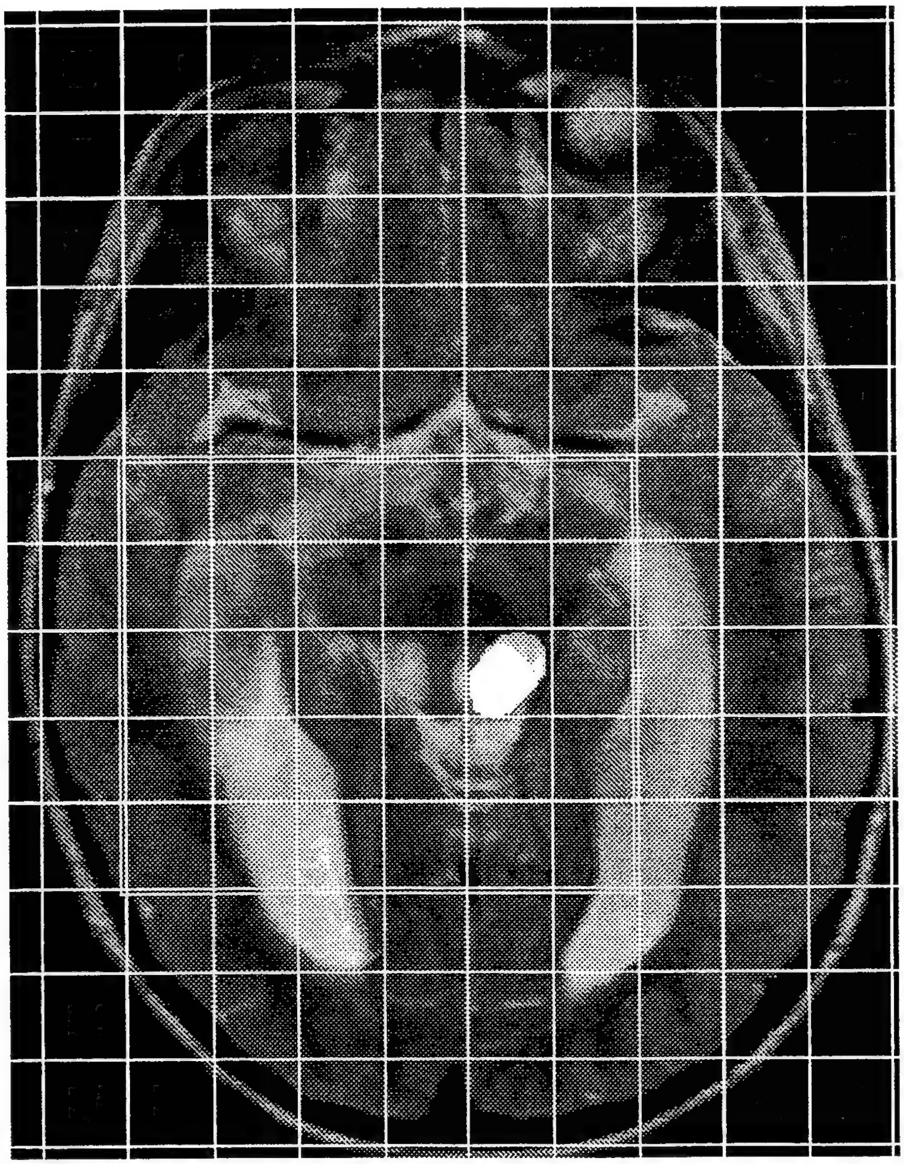
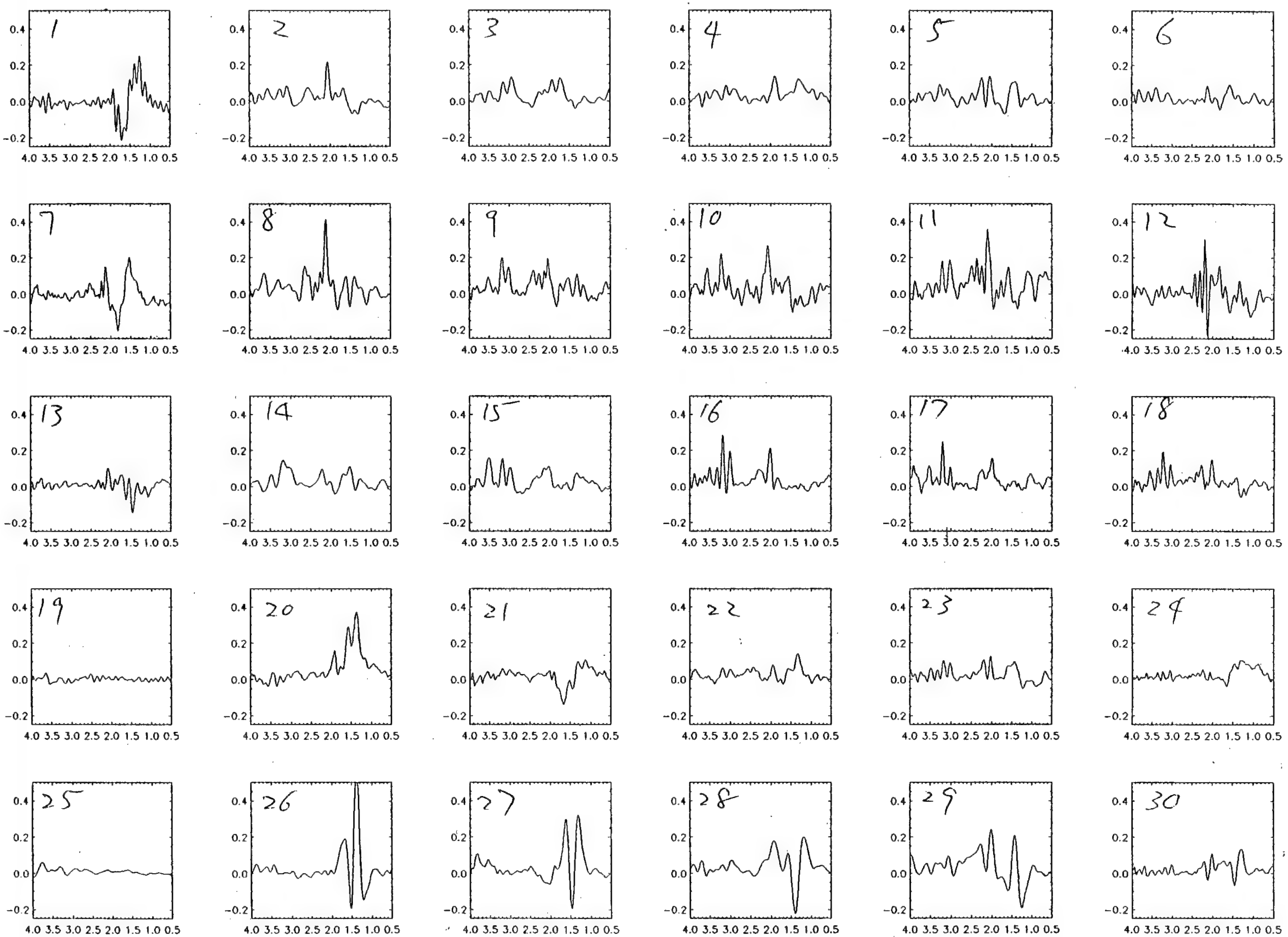
NF-1 MRS data summary									
Patient ID #		CSI array size	6x5	MR Scanner:	SP				
MR #		ROI dimension:	x = 84 mm						
Date of birth	Mar-25-90		y = 70 mm						
Date of MRS	Nov-9-95		z = 15 mm						
Head circumference		ROI position:	Px = -11.6 mm						
tumor location			Py = -13.4 mm						
control location			Pz = 28.0 mm						
Date of MRS processing	Dec-14-1995	voxel shift:	DPx = -5 mm						
			DPy = -5 mm						
Peak area									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	N		N	1.51	0.85	2.69	0	7.83	5.51
1, 3 (3)	N		N	1.35	1.13	6.36	6.63	0	3.74
1, 4 (4)	N		N	1.48	0.84	3.93	0.51	0.84	5.38
1, 5 (5)	N		N	1.22	0.98	2.71	5.26	0.07	2.86
2, 2 (8)	N		N	3.11	0.94	3.42	0	13.8	9.6
2, 3 (9)	N		N	2.04	1.99	4.51	0	13.5	3.3
2, 4 (10)	N		N	2.67	1.99	2.27	0	3.99	8.77
2, 5 (11)	N		N	1.07	1.32	5.86	3.3	9.83	8
3, 2 (14)	N		P(0-25%)	1	2.2	5.4	6.5	0	1.16
3, 3 (15)	N		N	4.66	1.46	3.42	4.08	2.27	2.79
3, 4 (16)	N		N	1.56	1.95	4.38	5.23	2.28	4.02
3, 5 (17)	P(50-75%)		N	2.13	1.6	1.88	10.1	0	3.99

11-9-95

~~processed~~ printed 1-24-96



processed 12-14-95



NF-1 MRS data summary										
Patient ID #		CSI array size	7x7x4	MR Scanner:	Vision					
MR #		ROI dimension:	x = 70 mm	HSI-CSI, te = 135 msec						
Date of birth	Oct-6-92		y = 70 mm							
Date of MRS	Aug-1-96		z = 60 mm							
Head circumference		ROI position:	Px = 3.4 mm							
tumor location			Py = -19.4 mm							
control location			Pz = -18.4 mm							
Date of MRS processing	Sept-16-96	voxel shift:	DPx = 0.0 mm							
			DPy = 0.0 mm							
	Over All	peak areas,	average and S.D.							
		# of voxels	Myo-inositol	Choline	Creatine	NAA	Lac	Area Cr/Cho	Area NAA/Cho	
	tumor	1	30	148.1	136.55	209.29		0.92	1.41	
	UBO	12	34.7+/-34.0	269.1+/-114.	180.5+/-108.	187.4+/-90.2		0.66+/-0.33	0.78+/-0.40	
	control	60	45.9+/-33.6	171.9+/-69.5	165.0+/-54.9	242.7+/-69.1		1.04+/-0.36	1.60+/-0.68	
metabolite levels	Slice #1 (Pz=-40.9, image #55)		values are in (peak area)/(number of spin in peak*average Cr in slice)							
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	NAA	Lac	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)							
2, 2 (9)	N		N	17.83	220.39	247.67	374.29		1.12	1.70
2, 6 (13)	N		N	95.5468	218.014	142.08	258.473		0.65	1.19
3, 1 (15)	N		N	60.683	182.493	234.194	271.946		1.28	1.49
3, 2 (16)	N		N	96.6458	154.4942	190.427	261.848		1.23	1.69
3, 5 (19)	N		N	81.3546	250.5711	181.823	260.062		0.73	1.04
3, 6 (20)	N		N	38.8562	120.5764	72.364	177.947		0.60	1.48
4, 1 (22)	N		N	89.8465	220.0557	202.363	263.459		0.92	1.20
4, 2 (23)	N		N	57.6573	177.2581	138.232	272.414		0.78	1.54
4, 3 (24)	N		N	40.5467	200.9118	152.587	238.26		0.76	1.19
4, 5 (26)	N		N	127.2165	227.287	157.971	205.557		0.70	0.90
4, 6 (27)	N		N	79.3278	170.4348	105.617	141.162		0.62	0.83
5, 1 (29)	N		N	110.926	109.658	120.169	250.785		1.10	2.29
5, 4 (32)	N		N	77.63	150.85	157.653	293.389		1.05	1.94
6, 1 (36)	N		N	78.6741	120.8	98.0701	192.531		0.81	1.59
6, 3 (38)	N		N	52.9185	108.75	97.0328	300.683		0.89	2.76
6, 4 (39)	N		N	32.5517	102.86	163.207	227.027		1.59	2.21
6, 5 (40)	N		N	5.96589	159.3259	145.372	242.235		0.91	1.52
			Control average	67.30	170.28	153.34	248.95		0.93	1.56
			S.D	33.09	47.28	47.92	52.68		0.27	0.52

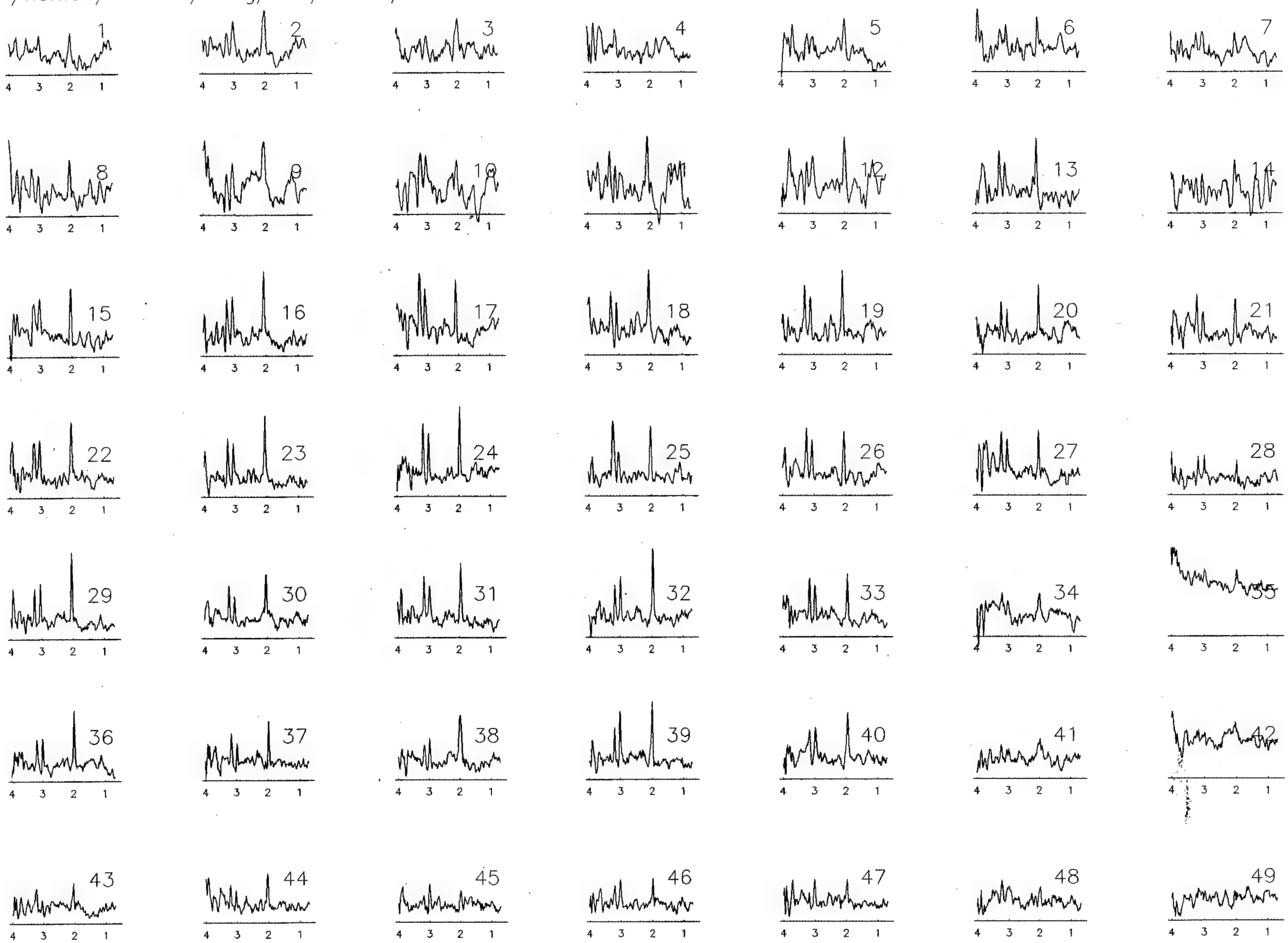
metabolite levels	Slice #2 (Pz=-25.9, image #57)		values are in (peak area)/(number of spin in peak*average Cr in slice)							
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	NAA	Lac	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)							
2, 2 (9)	P(0-25%UBU)		N	21.00	200.07	107.57	302.84		0.54	1.51
2, 5 (12)	P(75-100%UBU)		N	15	222	288	225		1.30	1.01
			UBO average	18.00	211.04	197.79	263.92		0.92	1.26
			SD	4.24	15.51	127.58	55.04		0.54	0.35
1, 1 (1)	N		N	21.63	105.89	138.40	184.37		1.31	1.74
1, 2 (2)	N		N	4.89	113.30	172.46	304.18		1.52	2.68
2, 1 (8)	N		N	67.90	93.47	218.10	251.35		2.33	2.69
3, 1 (15)	N		N	0	103.543	128.679	183.89		1.24	1.78
3, 2 (16)	N		N	7.99137	152.835	158.161	324.229		1.03	2.12
3, 3 (17)	N		N	53.5077	275.236	133.607	243.651		0.49	0.89
3, 4 (18)	N		N	2.85341	322.862	218.25	286.827		0.68	0.89
3, 5 (19)	N		N	0	153.174	177.952	187.296		1.16	1.22
3, 6 (20)	N		N	71.9322	78.9571	86.8602	109.241		1.10	1.38
4, 1 (22)	N		N	43.5281	99.2453	69.0116	195.811		0.70	1.97
4, 2 (23)	N		N	42.8048	242.554	181.424	348.276		0.75	1.44
4, 3 (24)	N		N	61.4098	244.082	230.402	189.092		0.94	0.77
4, 5 (26)	N		N	120.959	80.978	132.124	194.796		1.63	2.41
5, 2 (30)	N		N	53.2277	287.5	189.298	251.91		0.66	0.88
6, 3 (38)	N		N	70.2907	87.5212	90.8689	364.185		1.04	4.16
6, 4 (39)	N		N	7.2917	72.0992	76.8649	205.753		1.07	2.85
			Control average	39.39	157.08	150.15	239.05		1.10	1.87
			SD	34.97	86.45	51.78	70.57		0.46	0.93

metabolite levels	Slice #3 (Pz=-10.9, image #59)		values are in (peak area)/(number of spin in peak*average Cr in slice)							
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	NAA	Lac	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)							
2, 2 (9)	P(75-100%UBO)		N	0.00	563.10	400.61	65.09		0.71	0.12
2, 3 (10)	Y(UBO)		N	0.00	226.40	41.74	202.61		0.18	0.89
2, 4 (11)	Y(UBO)		N	0.00	129.00	34.00	129.00		0.26	1.00
2, 5 (12)	P(75-100%UBO)		N	83.5988	359.728	201.582	190.117		0.56	0.53
3, 1 (15)	P(75-100%UBO)		N	74.5011	252.154	225.097	134.311		0.89	0.53
3, 2 (16)	P(25-50%UBO)		N	30.5976	306.477	199.424	344.637		0.65	1.12
3, 5 (19)	P(25-50%UBO)		N	38.4245	300.977	91.0774	177.125		0.30	0.59
3, 6 (20)	P(75-100%UBO)		N	33	192	203	40		1.06	0.21
4, 1 (22)	Y(UBO)		N	100.028	309.723	263.207	268.248		0.85	0.87
5, 1 (29)	P(75-100%UBO)		N	19.7308	167.035	110.71	169.954		0.66	1.02
			UBO average	37.99	280.66	177.04	172.11		0.61	0.69
			SD	36.52	122.69	111.58	89.74		0.29	0.35

4, 2 (23)	N		N	34.5365	209.131	200.073	249.91		0.96	1.19
4, 3 (24)	N		N	127.581	339.364	210.248	372.148		0.62	1.10
4, 4 (25)	N		N	43.1751	236.576	195.909	303.413		0.83	1.28
4, 5 (26)	N		P(0-25%)	12	121.478	154.811	182.698		1.27	1.50
4, 6 (27)	N		P(0-25%)	19.2847	66.4182	52.8197	173.717		0.80	2.62
5, 5 (33)	N		P(0-25%)	13.2539	176.87	198.267	207.276		1.12	1.17
5, 6 (34)	N		P(0-25%)	6.54646	73.735	94.0714	140.71		1.28	1.91
6, 2 (37)	N		N	30.5075	199.283	173.962	306.655		0.87	1.54
6, 5 (40)	N		N	21.7029	196.928	182.645	251.437		0.93	1.28
			Control average	34.29	179.98	162.53	243.11		0.96	1.51
			SD	36.89	84.95	54.08	74.73		0.22	0.48
metabolite levels	Slice #4 (Pz=4.1, image #62)		values are in (peak area)/(number of spin in peak*average Cr in slice)							
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	NAA	Lac	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)							
1, 4 (4)	tumor P(50-75%)		P(0-25%)	30.00	148.10	136.55	209.29		0.92	1.41
3, 2 (16)	N		N	38.3915	93.9539	94.2508	267.123		1.00	2.84
3, 3 (17)	N		P(0-25%)	84.767	229.931	151.932	278.148		0.66	1.21
3, 4 (18)	N		P(0-25%)	14.5765	274.233	158.951	403.702		0.58	1.47
4, 2 (23)	N		N	37.2617	130.887	212.819	332.216		1.63	2.54
4, 3 (24)	N		N	52.336	239.462	230.482	310.72		0.96	1.30
4, 4 (25)	N		N	29.9273	270.072	233.045	338.419		0.86	1.25
4, 5 (26)	N		P(0-25%)	57.3598	199.197	139.506	248.442		0.70	1.25
4, 6 (27)	N		N	9.52221	75.4205	138.048	165.186		1.83	2.19
5, 2 (30)	N		N	71.7398	220.539	357.588	339.677		1.62	1.54
5, 3 (31)	N		P(0-25%)	25.1744	120.511	151.917	195.358		1.26	1.62
5, 4 (32)	N		P(0-25%)	26.4412	117.57	125.11	92.3088		1.06	0.79
5, 5 (33)	N		N	6.06839	137.648	189.788	204.27		1.38	1.48
5, 6 (34)	N		P(0-25%)	28.6777	205.419	186.492	193.88		0.91	0.94
6, 2 (37)	N		N	7.55063	114.322	175.636	256.702		1.54	2.25
6, 3 (38)	N		N	62.0011	153.3	227.82	163.846		1.49	1.07
6, 4 (39)	N		N	41.2256	188.369	208.267	151.594		1.11	0.80
6, 5 (40)	N		N	22.54	242.537	244.575	220.598		1.01	0.91
6, 6 (41)	N		N	54.8258	270.819	201.473	153.343		0.74	0.57
			Control average	37.24	182.46	190.43	239.75		1.13	1.45
			SD	22.70	65.44	59.25	82.88		0.37	0.63

Summary										
			average and S.D.							
tissue	slice #	# of voxels	Myo-inositol	Choline	Creatine	NAA	Lac	Area Cr/Cho	Area NAA/Cho	
tumor	#4	1	30.00	148.10	136.55	209.29		0.92	1.41	
UBO	#2	2	18.0, 4.2	211.0, 15.5	197.8, 127.6	263.9, 55.0		0.92, 0.54	1.26, 0.35	
UBO	#3	10	38.0, 36.5	280.7, 122.7	177.0, 111.6	172.1, 89.7		0.61, 0.29	0.69, 0.35	
control	#1	17	67.3, 33.1	170.3, 47.3	153.3, 47.9	248.9, 52.7		0.93, 0.27	1.56, 0.52	
control	#2	16	39.4, 35.0	157.1, 86.5	150.2, 51.8	239.1, 70.6		1.10, 0.46	1.87, 0.93	
control	#3	9	34.3, 36.9	180.0, 85.0	162.5, 54.1	243.1, 74.7		0.96, 0.22	1.51, 0.48	
control	#4	18	37.2, 22.7	182.5, 65.4	190.4, 59.3	239.8, 82.9		1.13, 0.37	1.45, 0.63	

/home2/tumtum/wang/NF1/P1770/ - _8-1-96-55.dat



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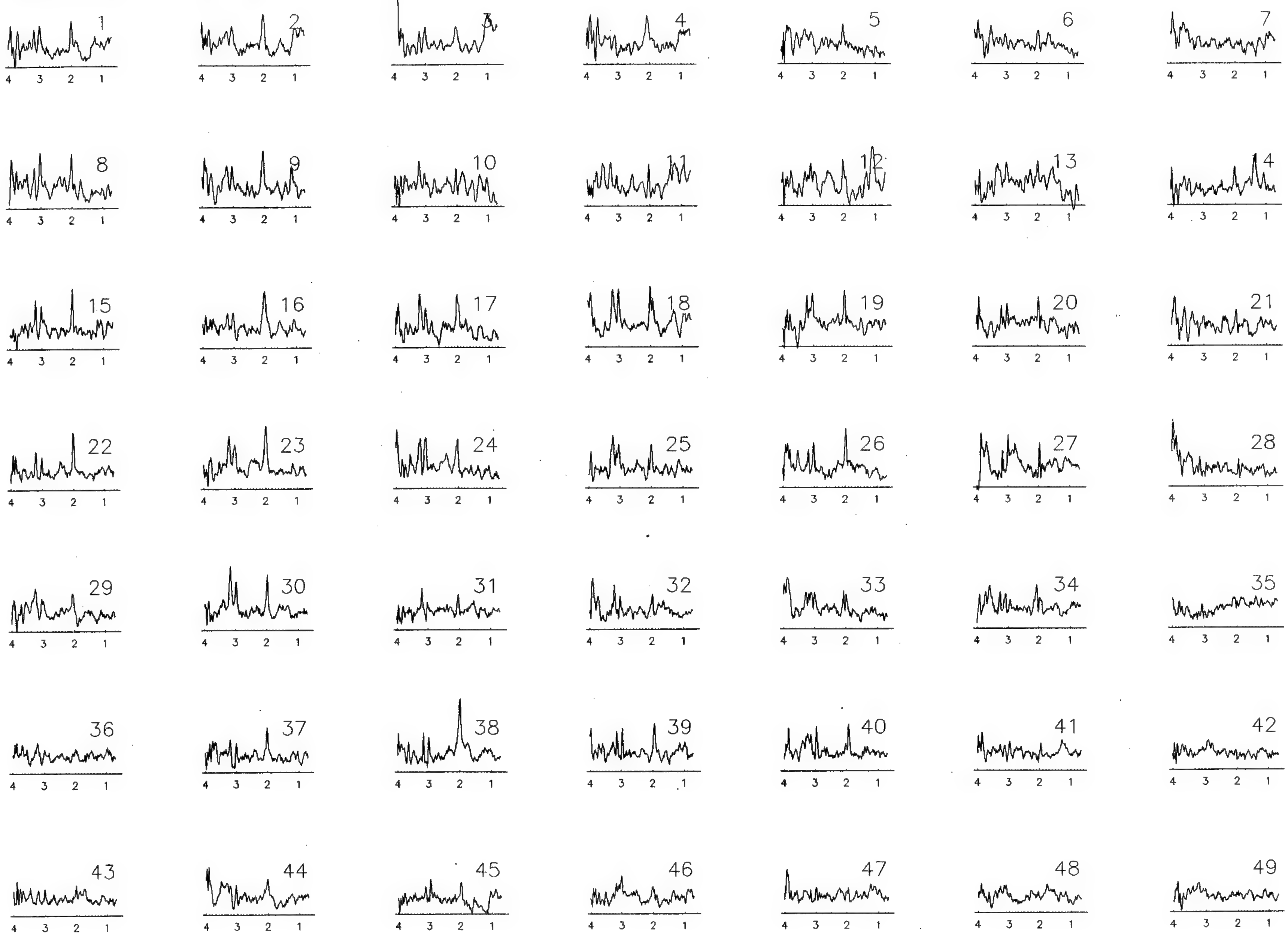

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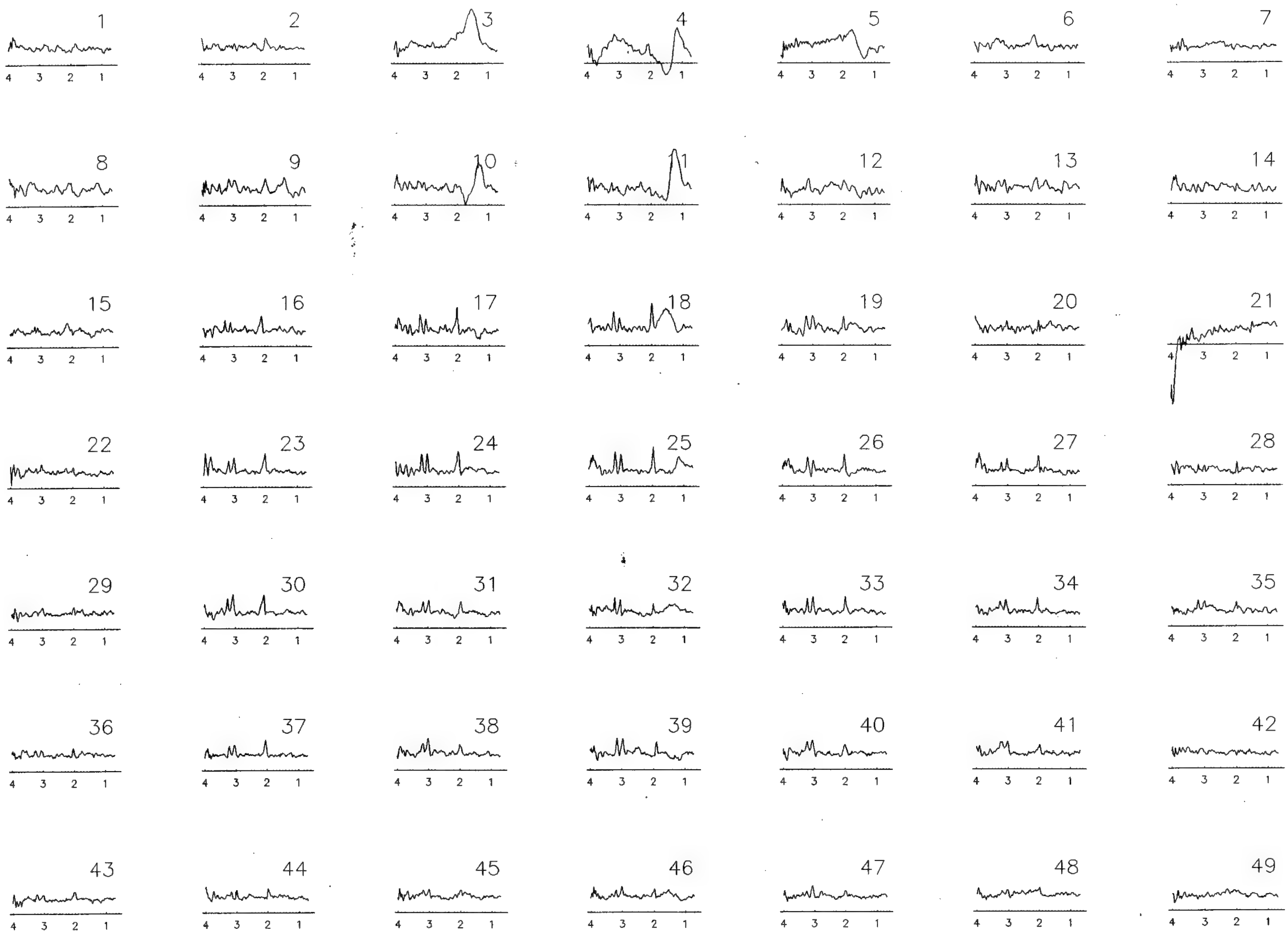
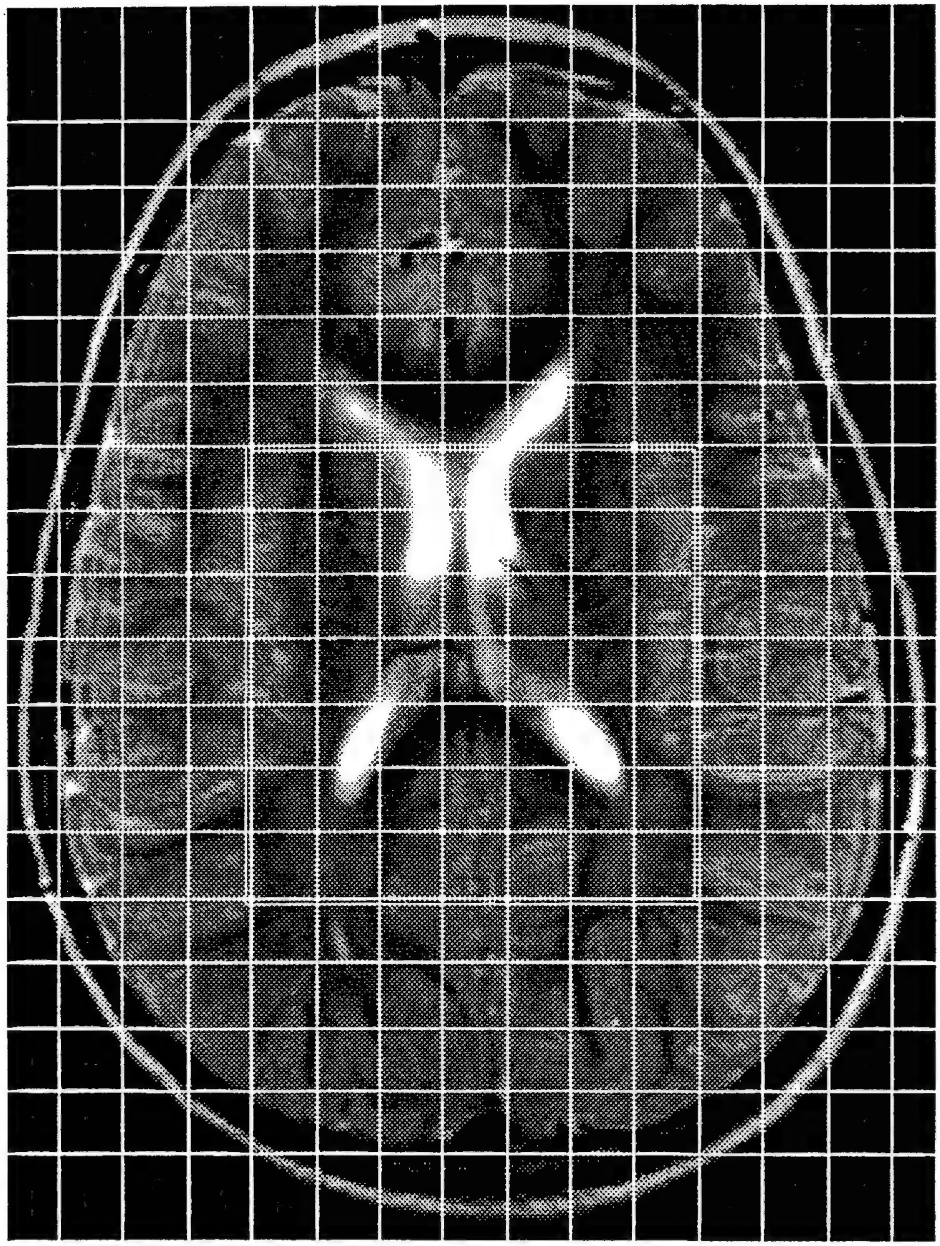


8-1-96.

0 imx = -5.

1770-3-55.ima

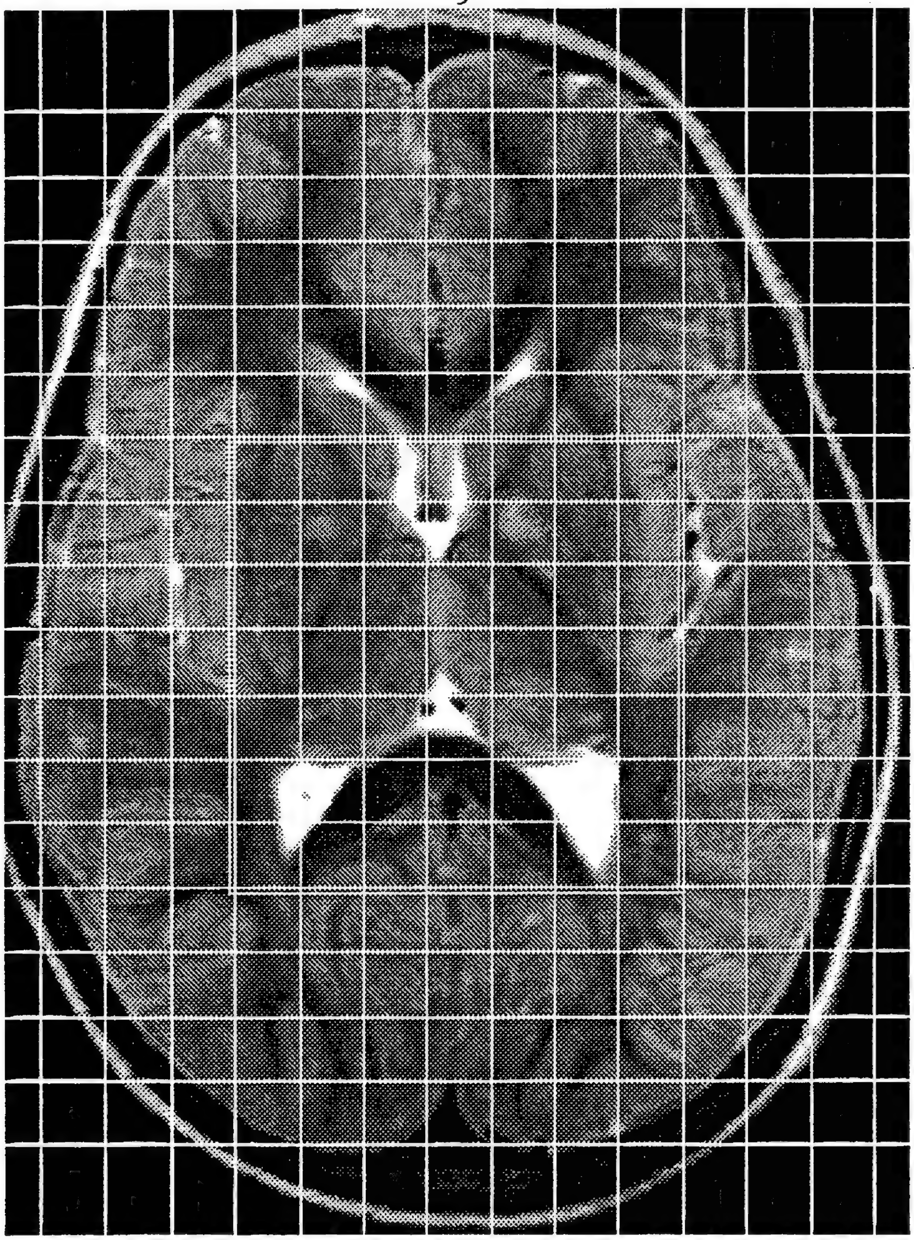
2 imy = 10.



8-1-96.

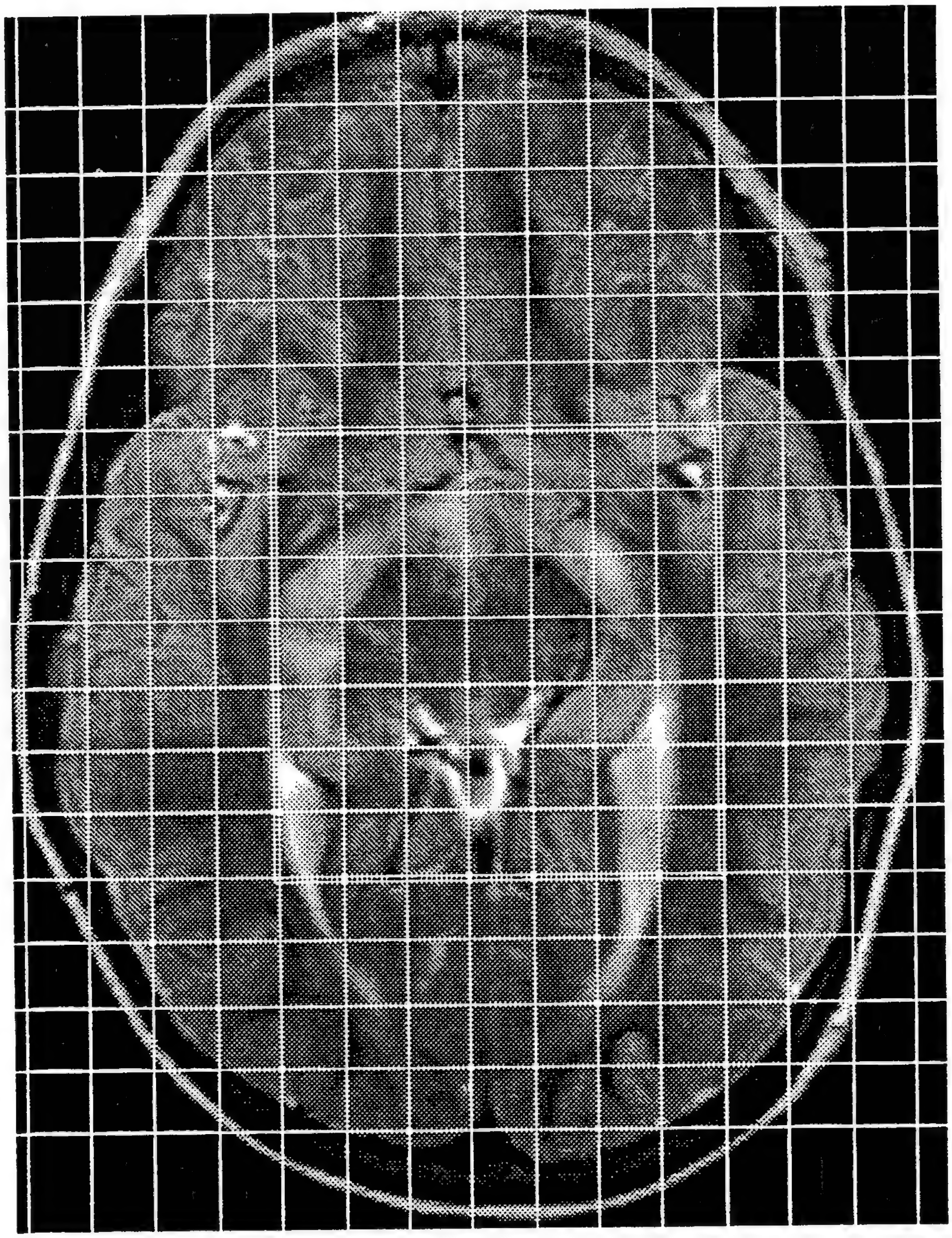
177c-3-57.ima.

$$\begin{cases} \Delta x = 3.0 \\ \Delta y = 0.0 \end{cases} \qquad \begin{cases} \Delta imx = -5. \\ \Delta imy = 10. \end{cases}$$



8-1-96-59. dat
1770- 3- 59. ima
1770- 12-156. ras

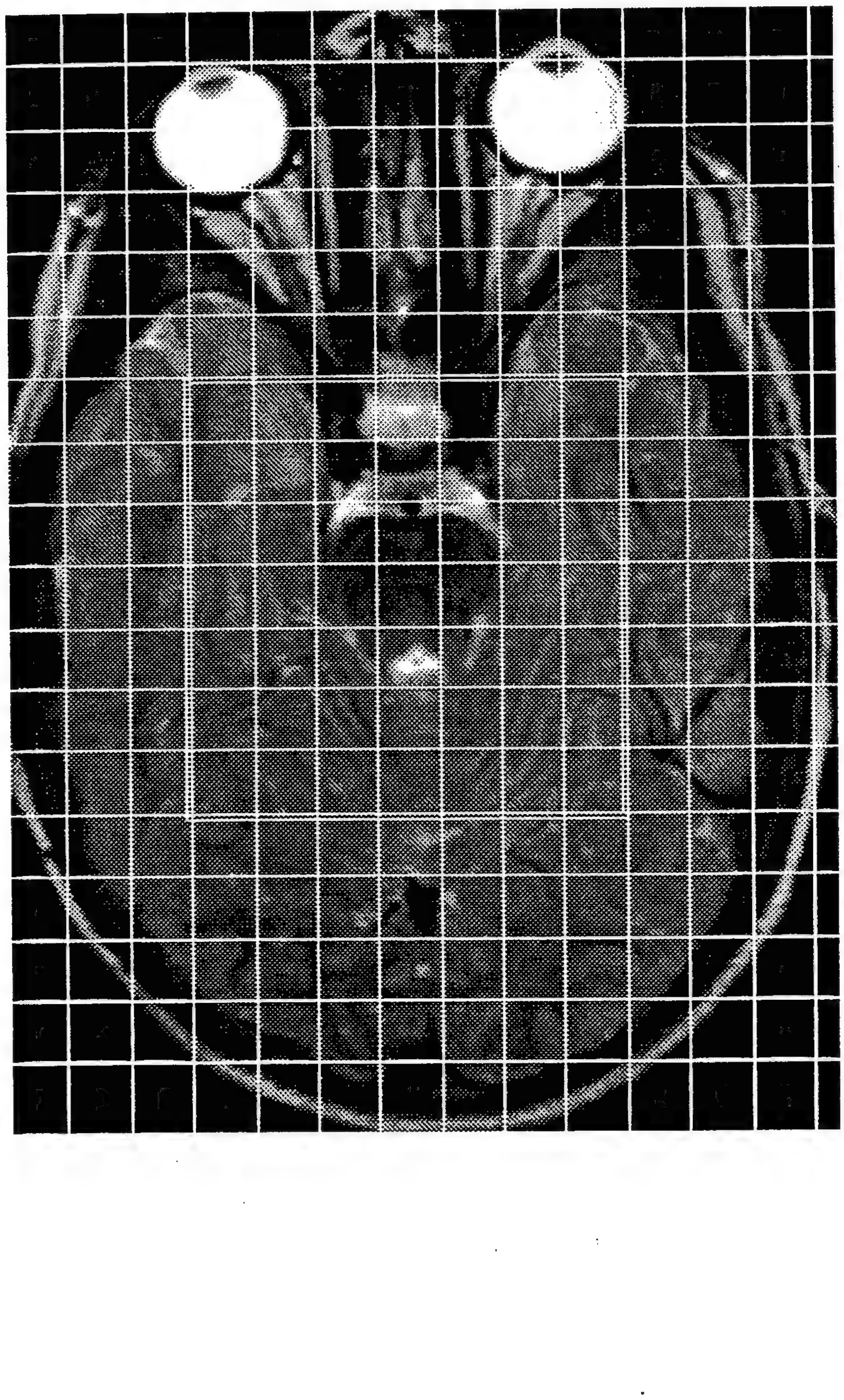
$\begin{cases} ox = +5.0 \\ oy = 0.0 \end{cases}$ $\begin{cases} oimx = -5. \\ oimy = 10. \end{cases}$



8-1-96

1770-3-62.ima

$\begin{cases} \Delta x = 0 \\ \Delta y = 0 \end{cases}$ $\begin{cases} \delta imx = -5. \\ \delta imy = 10. \end{cases}$



NF-1 MRS data summary									
Patient ID #		CSI array size	5x5	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	dec-18-93		y = 70 mm						
Date of MRS	Jan-18-96		z = 12 mm						
Head circumference		ROI position:	Px = 2.0 mm						
tumor location			Py = -18.2 mm						
control location			Pz = -1.8 mm						
Date of MRS processing	Jan-23-96	voxel shift:	DPx = 0 mm						
			DPy = -5 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	NAA
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	P(0-25%)		P(0-25%)	4.31	1.63	3.14	0.37	6.24	2.67
1, 3 (3)	P(50-75%)		P(25-50%)	0.65	1.27	4.16	2.45	3.64	3.8
1, 4 (4)	P(0-25%)		P(0-25%)	1.98	1.13	1.97	2.43	2.77	2.91
2, 2 (7)	N		P(0-25%)	4.87	1.13	3.42	5.51	2.73	5.81
2, 3 (8)	N		P(0-25%)	1.81	1.39	4.1	4.73	9.35	6.98
2, 4 (9)	N		P(0-25%)	1.66	1.44	2.41	4.64	1.61	3.92
3, 2 (12)	N		P(0-25%)	1.75	0.67	2.19	1.19	1.94	6.55
3, 3 (13)	N		P(0-25%)	1.02	0.74	4.97	5.4	1.11	2.9
3, 4 (14)	N		P(0-25%)	2.52	1	5.47	0.26	3.75	3.03
4, 2 (17)	N		N	0	0.81	2.53	3.41	0.6	4.45
4, 3 (18)	N		P(0-25%)	1.43	1.46	4.49	0.78	7.08	3.36
4, 4 (19)	N		N	2.08	0.48	5.06	4.09	3.23	4.07

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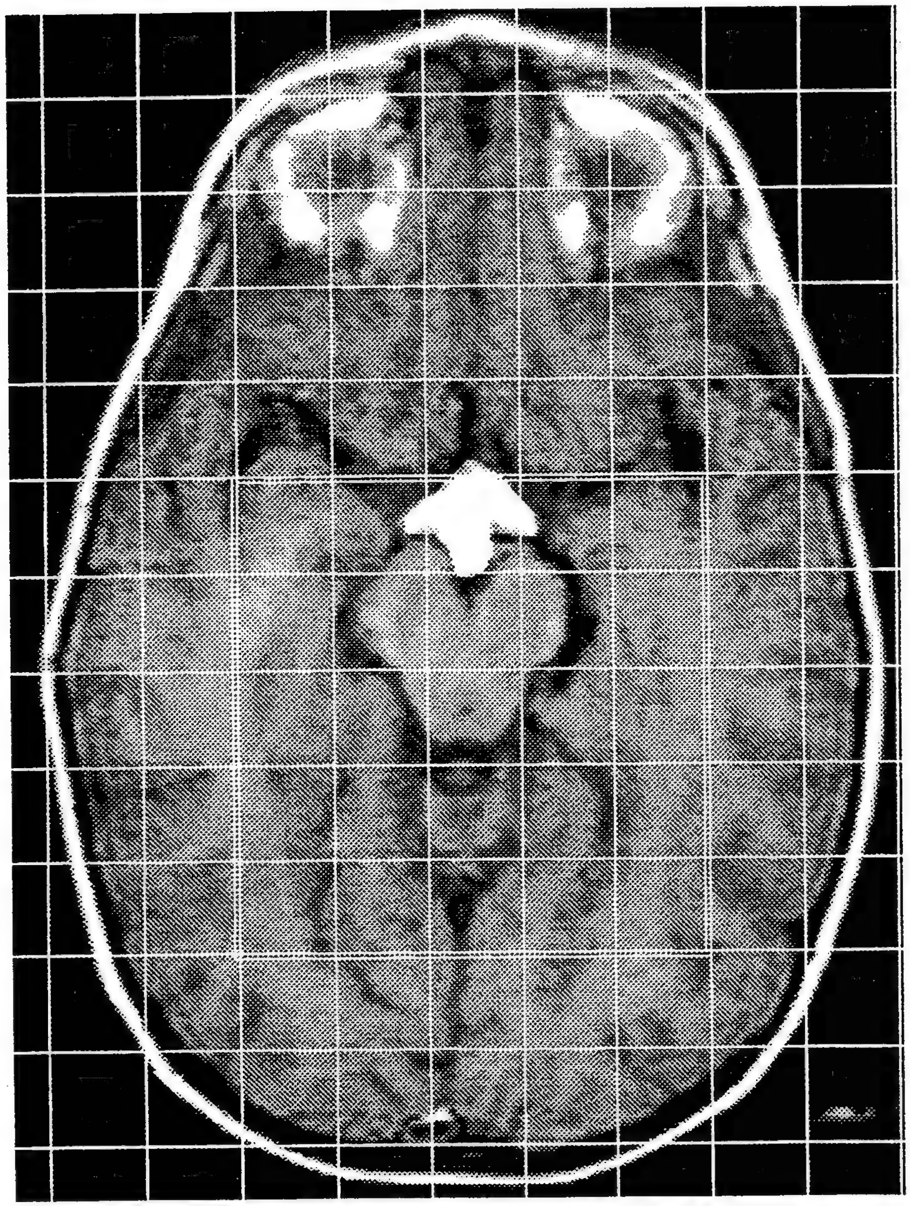
1-18-96

Shift = $\begin{cases} \Delta x = 0 \\ \Delta y = -5 \text{ mm} \end{cases}$



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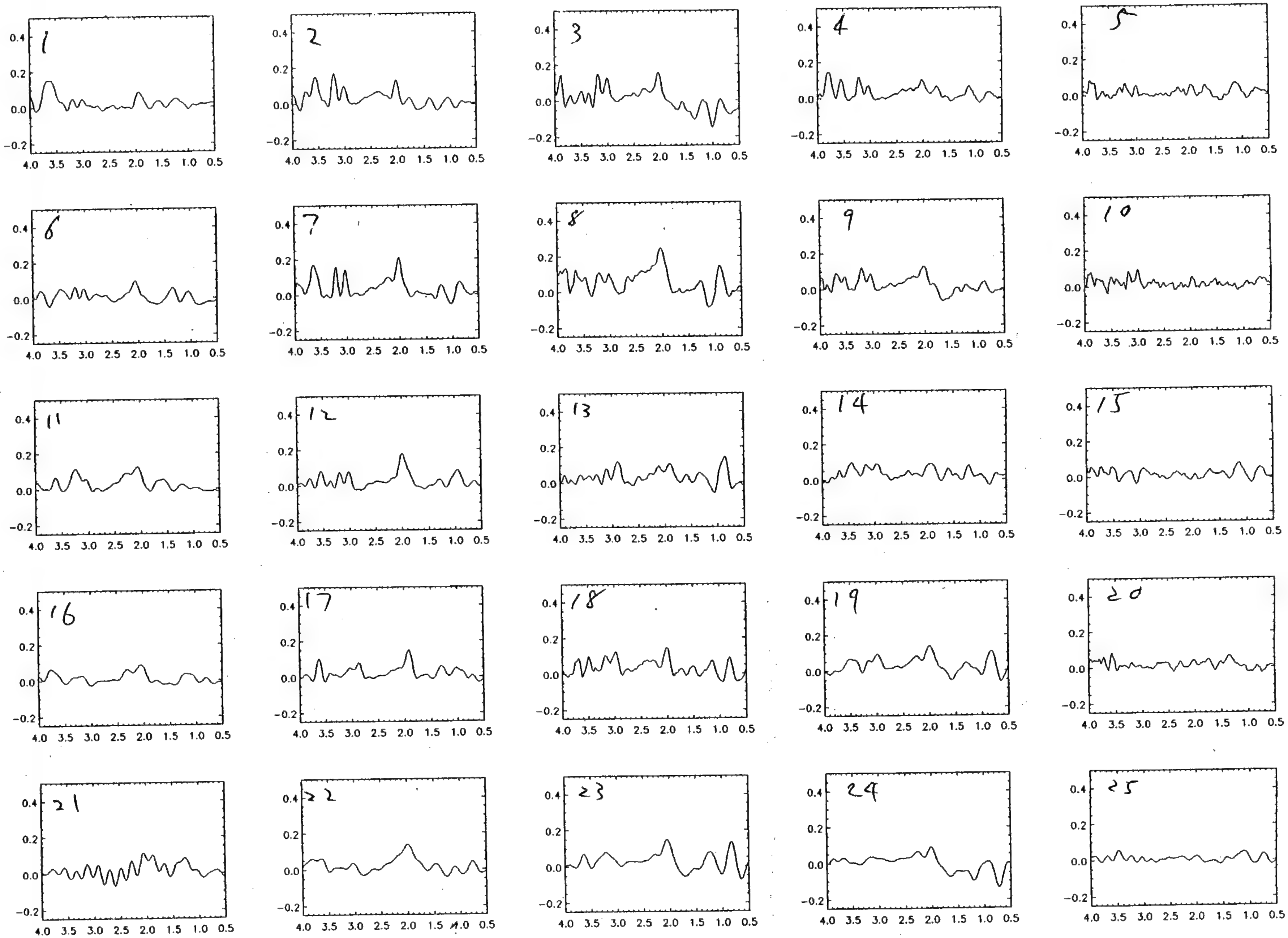
$$\text{Shift} = \begin{cases} \Delta x = 0 \\ \Delta y = -5\,\text{mm} \end{cases}$$



NF-1 MRS data summary									
Patient ID #		CSI array size	5x5	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	aug-13-88		y = 70 mm						
Date of MRS	Jul-13-94		z = 12 mm						
Head circumference		ROI position:	Px = 7.5 mm						
tumor location	optic chiasm		Py = 11.4 mm						
control location			Pz = 16.8 mm						
Date of MRS processing	Jan-24-96	voxel shift:	DPx = 0 mm	Dimx=0					
			DPy = -2 mm	Dimy=15					
Metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
2, 2 (7)	P(0-25%)		P (0-25%)	1.73320164	1.38153754	2.93890712	7.13375747	4.94841627	4.37068239
2, 3 (8)	P(75-100%)		P (0-25%)	2.96402599	1.13034889	2.28581665	3.36592782	0.3516641	3.08962031
2, 4 (9)	P(0-25%)		P (0-25%)	1.8336771	0.97963571	2.21046006	4.04413715	1.58248845	3.5919976
3, 2 (12)	N		N	4.84794081	1.68296391	5.90293311	5.52615015	5.50103129	5.85269539
3, 3 (13)	N		P (0-25%)	4.84794081	2.1853412	4.06925602	4.27020693	3.26545236	6.83233109
3, 4 (14)	N		N	2.68771848	1.0549923	3.46640328	1.80855823	1.68296391	3.91854283
4, 2 (17)	N		P (0-25%)	1.7583205	1.08011117	4.77258422	3.49152214	0	4.77258422
4, 3 (18)	N		N	4.19485034	1.88391482	4.69722763	3.99389943	6.60626131	4.67210876
4, 4 (19)	N		P (0-25%)	3.69247305	1.45689413	4.42092012	4.42092012	2.1099846	4.16973148
5, 2 (22)	N		N	3.81806738	1.18058662	6.80721223	4.92329741	2.86355053	4.54651444
5, 3 (23)	N		P (25-50%)	0.90427912	0.90427912	3.76782965	0.07535659	2.21046006	1.60760732
5, 4 (24)	N		N	3.34080895	1.20570549	5.42567469	3.08962031	2.91378826	2.78819394

7.13.96
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7-13-94. imx=0. Δimy = 15

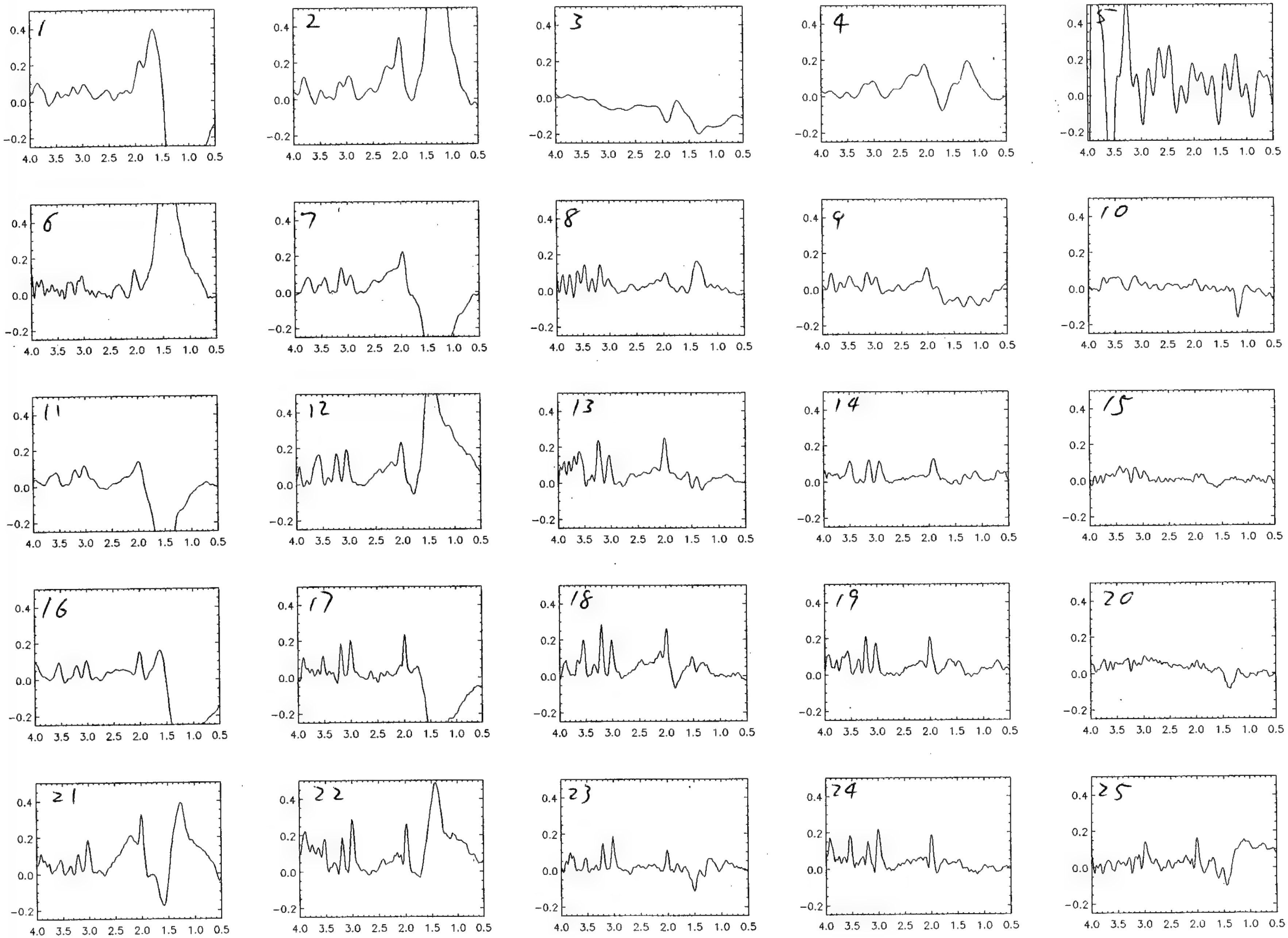
$\Delta x = 0$. $\Delta y = -2$.

processed 1-24-96

imx=0, imy=15
ΔX=0 ΔY=-2

7-13-94

processed 1-29-96



NF-1 MRS data summary									
Patient ID #		CSI array size	5x5	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	aug-13-88		y = 70 mm						
Date of MRS	Aug-10-95		z = 12 mm						
Head circumference		ROI position:	Px = 0.0 mm						
tumor location	optical chiasm		Py = -21.6 mm						
control location			Pz = 13.7 mm						
Date of MRS processing	9/2/95	voxel shift:	DPx = 0 mm						
			DPy = 0 mm						
Metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	N		P (0-25%)	1.36	1.44	8.3	3.39	0	8.99
1, 3 (3)	Y (75-100%)		P (0-25%)	2.23	1.54	5.26	1.02	0.92	3.07
1, 4 (4)	P (0-25%)		P (0-25%)	1.18	1.08	5.36	0.97	9.37	3.31
2, 2 (7)	N		P (0-25%)	3.66	1.14	5.39	3.55	1.54	7.16
2, 3 (8)	N		P (0-25%)	3.51	1.51	4.36	3.76	0	6.13
2, 4 (9)	N		P (0-25%)	1.81	1.13	4.02	4.95	0.32	3.59
3, 2 (12)	N		P (0-25%)	4.39	1.35	4.65	7.71	2.15	6.53
3, 3 (13)	N		P (0-25%)	4.02	1.44	4.15	0	12.9	6.5
3, 4 (14)	N		P (0-25%)	1.71	1.25	3.75	2.68	10.2	5.26
4, 2 (17)	N		N	5.11	1.05	3.27	4.04	8.92	3.7
4, 3 (18)	N		P (0-25%)	0	0.21	0.62	1.25	3.27	2.12
4, 4 (19)	N		N	0.17	0.86	1.14	0.36	5.52	1.44
5, 2 (22)	N		P (0-25%)	0.73	0.9	3.43	9.4	0	7.19
5, 3 (23)	N		P (0-25%)	1	0.53	2.3	4.89	0	4.3
5, 4 (24)	N		N	1.36	0.94	2.64	3.36	0.92	5.69

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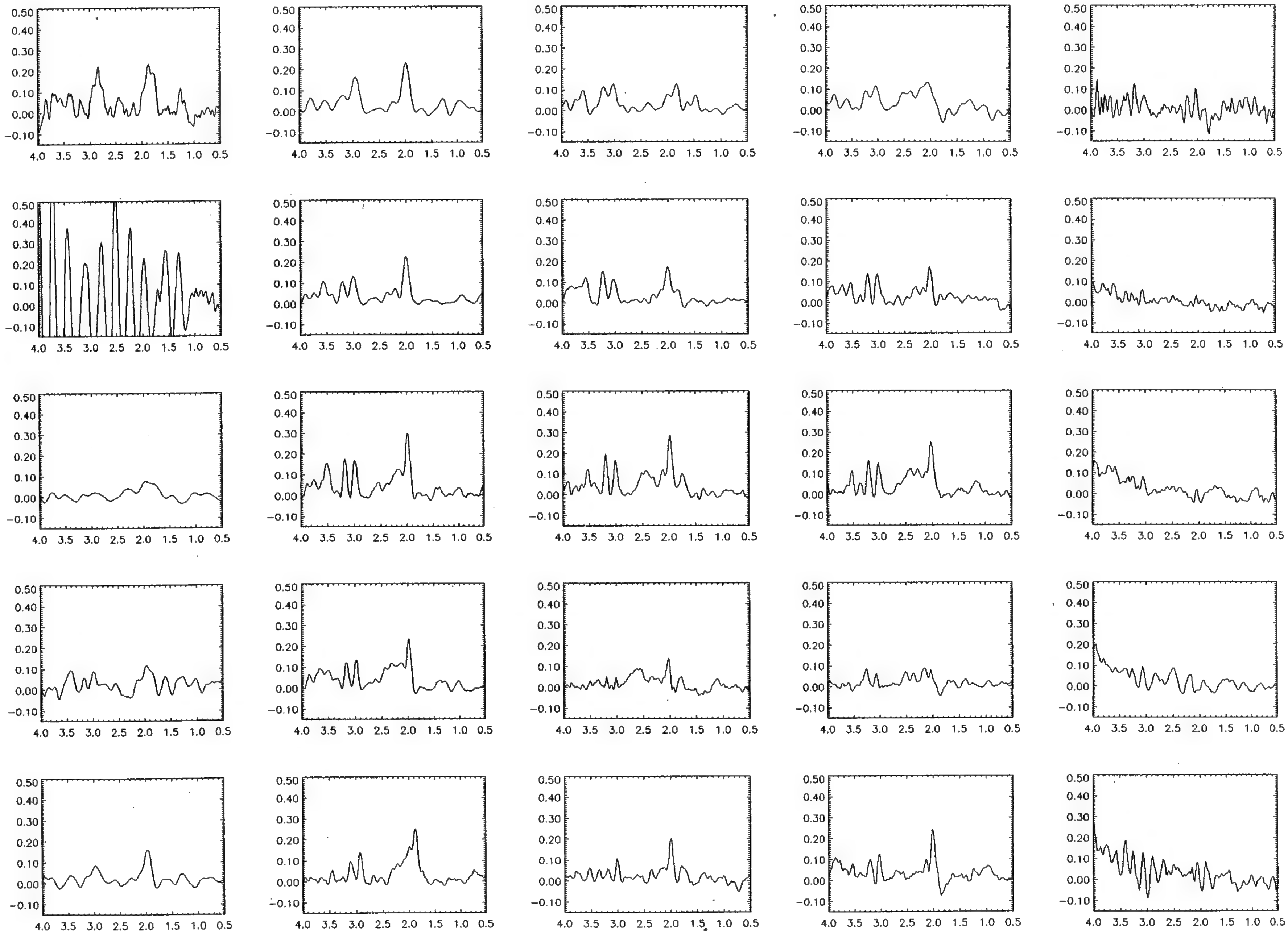
[illegible] 7/15/95

NF-1 MRS data summary									
Patient ID #	———	CSI array size	5x5	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	aug-13-88		y = 70 mm						
Date of MRS	Aug-10-95		z = 12 mm						
Head circumference		ROI position:	Px = 0.0 mm						
tumor location	optical chiasm		Py = -21.6 mm						
control location			Pz = 13.7 mm						
Date of MRS processing	9/2/95	voxel shift:	DPx = 0 mm						
			DPy = 0 mm						
Metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	N		P (0-25%)	1.36	1.44	8.3	3.39	0	8.99
1, 3 (3)	Y (75-100%)		P (0-25%)	2.23	1.54	5.26	1.02	0.92	3.07
1, 4 (4)	P (0-25%)		P (0-25%)	1.18	1.08	5.36	0.97	9.37	3.31
2, 2 (7)	N		P (0-25%)	3.66	1.14	5.39	3.55	1.54	7.16
2, 3 (8)	N		P (0-25%)	3.51	1.51	4.36	3.76	0	6.13
2, 4 (9)	N		P (0-25%)	1.81	1.13	4.02	4.95	0.32	3.59
3, 2 (12)	N		P (0-25%)	4.39	1.35	4.65	7.71	2.15	6.53
3, 3 (13)	N		P (0-25%)	4.02	1.44	4.15	0	12.9	6.5
3, 4 (14)	N		P (0-25%)	1.71	1.25	3.75	2.68	10.2	5.26
4, 2 (17)	N		N	5.11	1.05	3.27	4.04	8.92	3.7
4, 3 (18)	N		P (0-25%)	0	0.21	0.62	1.25	3.27	2.12
4, 4 (19)	N		N	0.17	0.86	1.14	0.36	5.52	1.44
5, 2 (22)	N		P (0-25%)	0.73	0.9	3.43	9.4	0	7.19
5, 3 (23)	N		P (0-25%)	1	0.53	2.3	4.89	0	4.3
5, 4 (24)	N		N	1.36	0.94	2.64	3.36	0.92	5.69

8-10-95

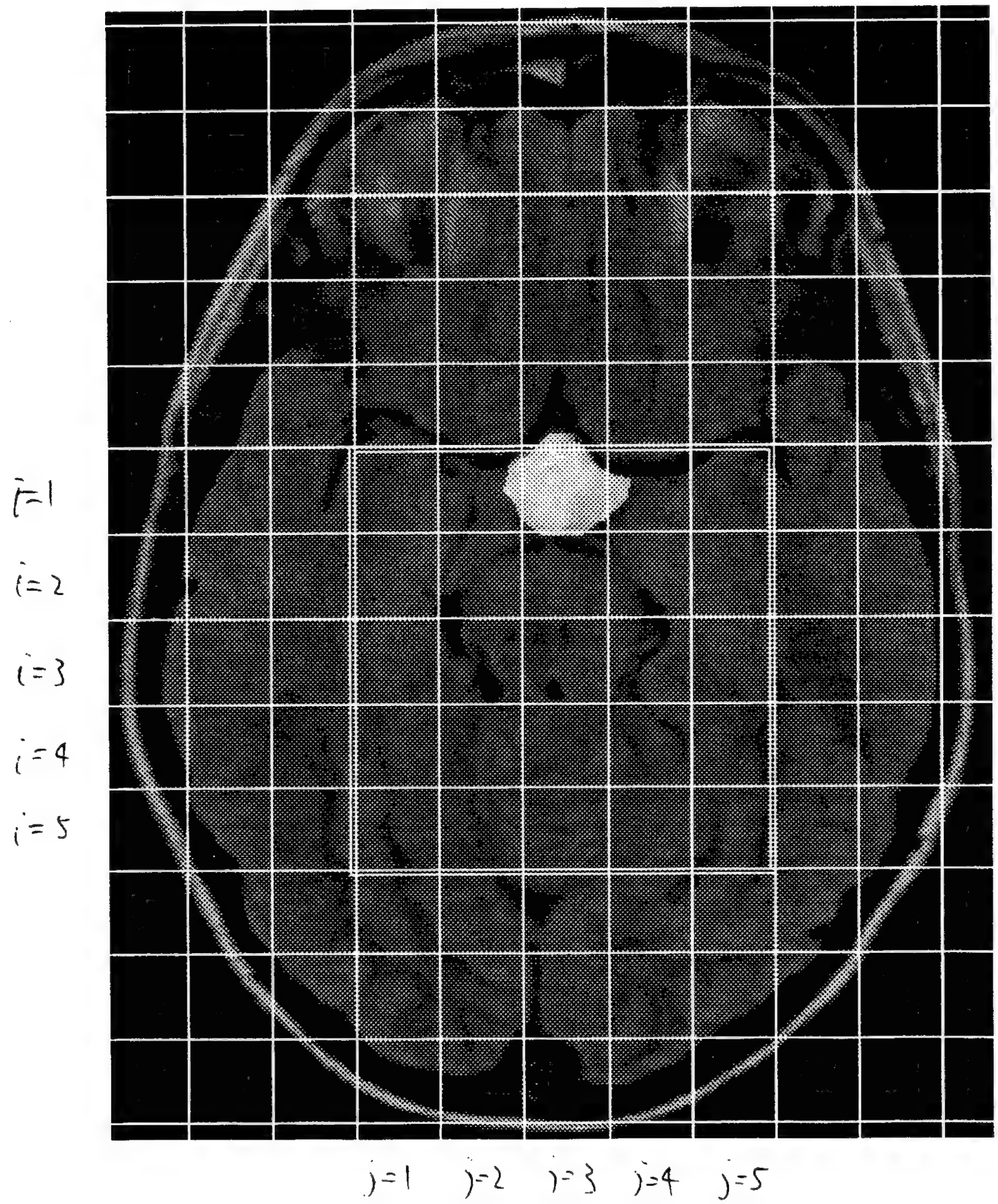


0.50 0.40 0.30 0.20 0.10 0.00 −0.10
4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5

NF-1 MRS data summary									
Patient ID #		CSI array size	5x5	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	13-Aug-89		y = 70 mm						
Date of MRS	28-Mar-95		z =12 mm						
Head circumference		ROI position:	Px = -2.1 mm						
tumor location	optical chiasm		Py = -13.6 mm						
control location			Pz = 18.8 mm						
Date of MRS processing	26-Aug-95	voxel shift:	DPx = 2.5 mm						
			DPy = -2.5 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1,2 (2)	P (0-25%)		P (0-25%)	0.89	0.78	3.47	4.6	3.87	3.27
1,3 (3)	Y (75-100%)		P (0-25%)	0.82 ~~0.6~~	0.82 ~~0.66~~	4.46 ~~2.01~~	2.31 ~~1.22~~	0	2.09 ~~1.63~~
1,4 (4)	P (0-25%)		P (0-25%)	1.75	0.69	1.72	0.82	1.79	1.42
2,2 (7)	N		N	2.63	1.21	2.62	5.67	1.55	2.33
2,3 (8)	N		N	1.19	0.88	1.84	0.69	0	2.34
2,4 (9)	N		N	1.67	0.98	3.66	3.65	1.13	2.57
3,2 (12)	N		N	3.04	1.25	4.03	5.23	4.78	5.1
3,3 (13)	N		N	2.91	0.95	1.98	6.61	0.43	1.56
3,4 (14)	N		N	2.59	1.21	3.18	3.01	5.69	2.3
4,2 (17)	N		N	1.05	0.43	1.94	0	5.91	1.9
5,2 (22)	N		N	0.52	0.42	1.69	3.23	5.28	2.14
5,3 (23)	N		N	0.38	0.7	2.29	2.67	0.08	2.52
5,4 (24)	N		N	2.74	0.74	2.93	5.21	4.62	4.36

Vld SWN 7/5/96.

3-28-95



3-28-95

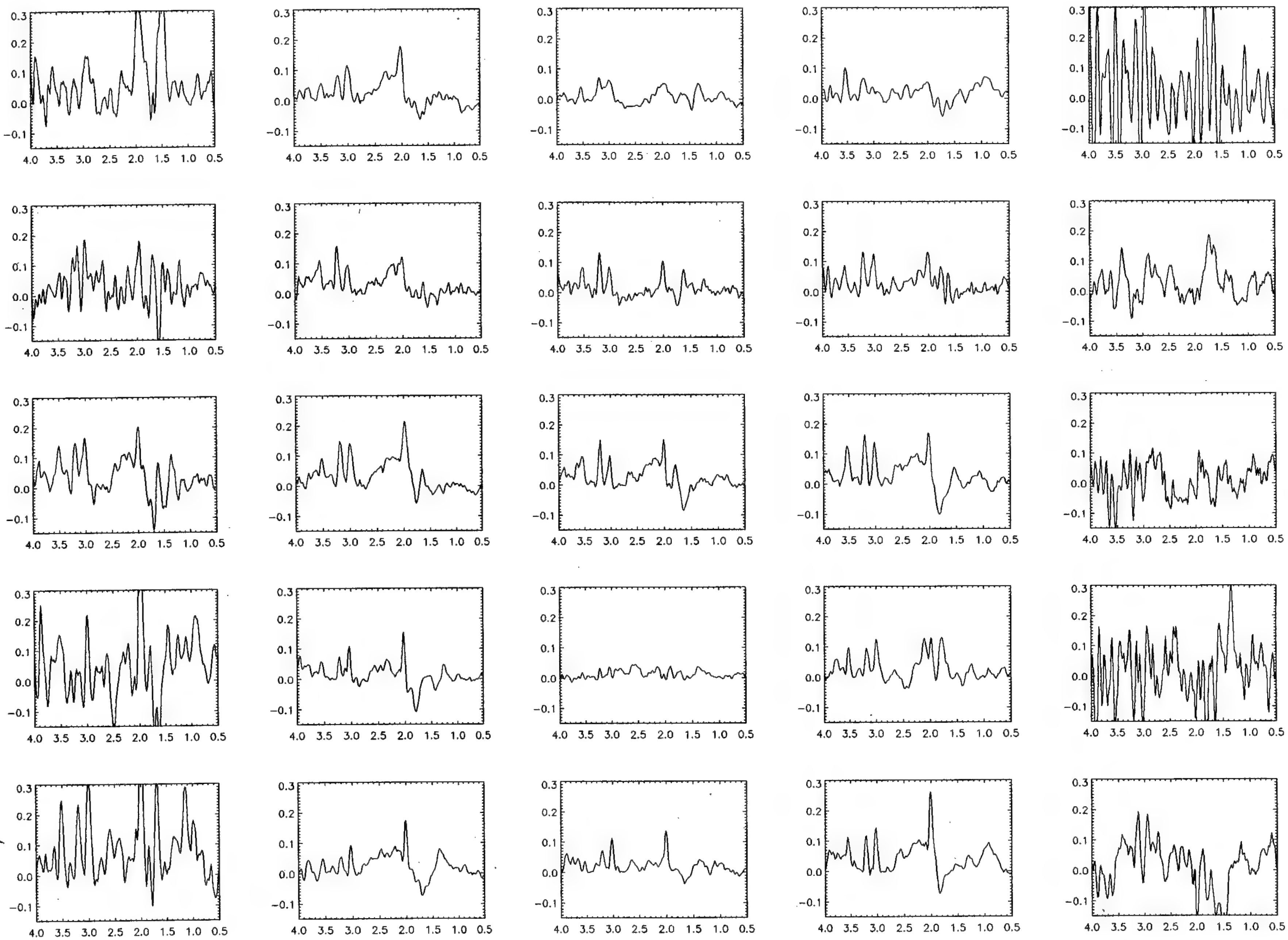
i=1

i=2

i=3

i=4

i=5



j=1 j=2 j=3 j=4 j=5

NF-1 MRS data summary										
Patient ID #		CSI array size	7x7x4	MR Scanner:	Vision					
MR #		ROI dimension:	x = 70 mm	HSI-CSI, te = 135 msec						
Date of birth	Dec-18-93		y = 70 mm							
Date of MRS	Sep-12-96		z = 60 mm							
Head circumference		ROI position:	Px = 6.1 mm							
tumor location			Py = 7.8 mm							
control location			Pz = -5.7 mm							
Date of MRS processing	Sept-16-96	voxel shift:	DPx = 0.0 mm							
			DPy = 0.0 mm							
	Over All	peak areas,	average and S.D.							
		# of voxels	Myo-inositol	Choline	Creatine	NAA	Lac	Area Cr/Cho	Area NAA/Cho	
	tumor	1	19.9	344.7	149.2	120.1		0.43	0.35	
	UBO	28	66.4+/-24.0	324.6+/-88.2	194.1+/-53.1	206.2+/-38.3		0.63+/-0.18	0.69+/-0.27	
	control	58	63.0+/-48.0	217.8+/-64.8	144.2+/-44.1	221.5+/-45.9		0.70+/-0.24	1.10+/-0.37	
metabolite levels	Slice #1 (Pz=-28.2, image #32)		values are in peak area							
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	NAA	Lac	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)							
3, 2 (16)	MRI normal,above ubo		N	43.74	347.45	140.68	252.33	0.00	0.40	0.73
2, 1 (8)	N		N	0.99	170.19	170.12	228.29	0.00	1.00	1.34
2, 2 (9)	N		N	49.68	192.01	168.13	220.40	0.00	0.88	1.15
2, 3 (10)	N		P(0-25%)	15.25	170.98	183.05	272.87	0.00	1.07	1.60
3, 1 (15)	N		N	11.26	160.50	103.91	225.84	0.00	0.65	1.41
3, 4 (18)	N		P(0-25%)	16.28	223.48	115.72	232.73	0.00	0.52	1.04
3, 5 (19)	N		N	31.11	229.27	59.21	223.69	0.00	0.26	0.98
3, 6 (20)	N		N	86.12	160.63	91.65	260.83	0.00	0.57	1.62
4, 1 (22)	N		N	160.35	126.27	91.85	247.33	0.00	0.73	1.96
4, 2 (23)	N		N	24.96	178.79	142.79	301.59	0.00	0.80	1.69
4, 4 (25)	N		P(0-25%)	78.93	307.12	217.81	243.36	0.00	0.71	0.79
4, 5 (26)	N		N	80.84	323.81	212.31	189.39	0.00	0.66	0.58
4, 6 (27)	N		P(0-25%)	24.32	209.90	124.08	249.31	0.00	0.59	1.19
5, 1 (29)	N		N	125.23	280.75	260.73	290.54	0.00	0.93	1.03
5, 2 (30)	N		N	7.73	224.02	175.61	268.08	0.00	0.78	1.20
5, 3 (31)	N		P(0-25%)	22.45	257.32	123.40	185.87	0.00	0.48	0.72
5, 4 (32)	N		P(0-25%)	47.46	283.23	120.01	278.46	0.00	0.42	0.98
5, 5 (33)	N		N	160.46	211.14	212.89	179.69	0.00	1.01	0.85
5, 6 (34)	N		P(0-25%)	234.78	376.64	173.76	211.27	0.00	0.46	0.56
6, 2 (37)	N		N	52.45	162.31	105.06	248.71	0.00	0.65	1.53
6, 3 (38)	N		N	36.91	186.09	155.43	216.87	0.00	0.84	1.17
6, 4 (39)	N		N	66.88	182.70	87.12	239.51	0.00	0.48	1.31

6, 5 (40)	N		N	30.74	205.51	172.71	260.34	0.00	0.84	1.27
6, 6 (41)	N		N	38.03	154.29	137.29	186.77	0.00	0.89	1.21
			control average	61.01	216.39	148.03	237.47		0.70	1.18
			S.D.	58.74	62.37	50.00	33.70		0.21	0.36
metabolite levels	Slice #2 (Pz=-13.2, image #34)		values are in peak area							
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	NAA	Lac	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)							
3, 3 (17)	P(25-50%ubo), above ubo		N	46.91	526.93	283.39	238.24	0.00	0.54	0.45
3, 4 (18)	UBO		N	42.12	505.63	207.21	189.89	0.00	0.41	0.38
3, 5 (19)	P(0-25%ubo), above ubo		N	39.69	385.87	215.80	282.53	0.00	0.56	0.73
4, 2 (24)	UBO		N	57.38	288.40	180.32	326.45	0.00	0.63	1.13
4, 3 (25)	UBO		N	73.41	329.15	168.19	247.03	0.00	0.51	0.75
4, 5 (26)	UBO		N	61.45	447.71	310.61	287.21	0.00	0.69	0.64
			UBO average	53.49	413.95	227.58	261.89		0.56	0.68
			S.D.	12.95	95.97	57.14	47.33		0.10	0.27
2, 6 (13)	N		N	28.04	143.01	170.29	260.75	0.00	1.19	1.82
3, 1 (15)	N		N	67.61	129.87	91.11	199.20	0.00	0.70	1.53
3, 2 (16)	N		N	31.95	190.00	186.79	266.03	0.00	0.98	1.40
3, 6 (20)	N		N	53.75	188.73	124.17	235.14	0.00	0.66	1.25
4, 6 (27)	N		N	62.70	276.84	183.23	277.30	0.00	0.66	1.00
5, 4 (32)	N		N	66.22	364.60	76.52	145.31	0.00	0.21	0.40
6, 5 (40)	N		N	68.03	301.06	154.51	188.77	0.00	0.51	0.63
			control average	54.04	227.73	140.94	224.64		0.70	1.15
			S.D.	17.16	87.77	44.44	48.53		0.32	0.51
metabolite levels	Slice #3 (Pz=1.8, image #37)		values are in peak area							
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	NAA	Lac	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)							
2, 3 (10)	UBO		N	60.17	455.82	255.96	137.57	0.00	0.56	0.30
2, 4 (11)	UBO		P(0-25%)	92.53	357.79	149.35	118.34	0.00	0.42	0.33
2, 5 (12)	UBO		N	82.51	310.45	183.53	190.84	0.00	0.59	0.61
3, 1 (15)	P(50-75%UBO)		N	70.88	188.66	221.91	213.36	0.00	1.18	1.13
3, 2 (16)	UBO		N	78.35	246.19	233.62	181.01	0.00	0.95	0.74
3, 3 (17)	UBO		N	59.29	438.02	218.35	134.06	0.00	0.50	0.31
3, 4 (18)	UBO		N	32.90	534.71	201.95	218.34	0.00	0.38	0.41
3, 5 (19)	UBO		N	67.02	291.60	235.88	173.31	0.00	0.81	0.59
3, 6 (20)	UBO		N	83.54	249.46	184.39	200.39	0.00	0.74	0.80
4, 1 (22)	UBO		N	109.63	367.97	207.01	187.23	0.00	0.56	0.51
4, 2 (23)	UBO		N	38.35	334.13	167.42	196.72	0.00	0.50	0.59
4, 3 (24)	P(50-75%UBO)		N	55.10	165.60	119.35	207.37	0.00	0.72	1.25
4, 5 (26)	UBO		N	23.01	213.83	93.66	223.38	0.00	0.44	1.04

4, 6 (27)	UBO		N	73.41	215.41	151.43	208.67	0.00	0.70	0.97
5, 1 (29)	UBO		N	125.83	323.03	319.97	267.22	0.00	0.99	0.83
5, 2 (30)	UBO		N	99.88	197.81	147.34	150.13	0.00	0.74	0.76
5, 3 (31)	UBO		P(0-25%)	113.01	275.69	154.65	172.14	0.00	0.56	0.62
			UBO average	74.44	303.89	190.93	187.06		0.67	0.69
			S.D.	28.56	102.93	55.09	37.39		0.22	0.29
2, 1 (8)	N		N	51.74	224.28	126.90	114.57	0.00	0.57	0.51
2, 6 (13)	N		N	36.15	242.97	200.22	212.05	0.00	0.82	0.87
4, 4 (25)	N		N	47.50	146.74	78.75	227.36	0.00	0.54	1.55
5, 4 (32)	N		N	37.23	158.84	91.05	261.08	0.00	0.57	1.64
5, 5 (33)	N		P(0-25%)	260.06	177.89	130.02	138.63	0.00	0.73	0.78
5, 6 (34)	N		P(0-25%)	157.28	277.92	218.55	233.03	0.00	0.79	0.84
6, 1 (36)	N		N	93.48	150.79	119.01	150.03	0.00	0.79	0.99
6, 2 (37)	N		N	86.65	181.36	105.55	223.36	0.00	0.58	1.23
6, 3 (38)	N		P(0-25%)	28.35	193.27	76.62	249.80	0.00	0.40	1.29
6, 5 (40)	N		P(0-25%)	120.38	126.23	142.06	223.85	0.00	1.13	1.77
6, 6 (41)	N		N	111.51	127.09	156.05	177.57	0.00	1.23	1.40
			control average	93.67	182.49	131.34	201.03		0.74	1.17
			S.D.	68.89	48.71	46.15	48.33		0.25	0.40
metabolite levels	Slice #4 (Pz=16.8, image #39)		values are in peak area							
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	NAA	Lac	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)							
2, 4 (11)	Tumor		N	19.94	344.72	149.24	120.09	0.00	0.43	0.35
2, 1 (8)	P(50-75%UBO)		N	48.31	264.05	217.79	222.07	0.00	0.82	0.84
2, 3 (10)	P(50-75%UBO)		P(0-25%)	37.68	293.36	150.97	141.65	0.00	0.51	0.48
3, 1 (15)	UBO		N	86.13	266.73	182.36	220.60	0.00	0.68	0.83
3, 2 (16)	UBO		N	57.22	267.57	131.44	185.70	0.00	0.49	0.69
			UBO average	57.33	272.93	170.64	192.50		0.63	0.71
			S.D.	20.79	13.70	37.79	37.84		0.16	0.17
2, 6 (13)	N		P(0-25%)	72.53	253.92	180.40	246.41	0.00	0.71	0.97
3, 5 (19)	N		P(0-25%)	53.73	212.55	187.57	196.11	0.00	0.88	0.92
3, 6 (20)	N		N	57.93	170.45	177.37	134.36	0.00	1.04	0.79
4, 3 (24)	N		P(0-25%)	117.06	243.27	136.89	232.89	0.00	0.56	0.96
4, 4 (25)	N		N	32.43	281.32	164.77	209.63	0.00	0.59	0.75
4, 5 (26)	N		P(0-25%)	50.63	171.77	147.74	152.45	0.00	0.86	0.89
5, 2 (30)	N		P(0-25%)	50.23	253.61	81.82	269.45	0.00	0.32	1.06
5, 3 (31)	N		P(0-25%)	62.79	381.57	183.07	245.41	0.00	0.48	0.64
5, 4 (32)	N		P(0-25%)	113.50	323.86	118.29	323.39	0.00	0.37	1.00
5, 5 (33)	N		P(0-25%)	26.36	214.13	169.97	118.45	0.00	0.79	0.55
5, 6 (34)	N		N	23.36	143.14	165.15	156.58	0.00	1.15	1.09
6, 1 (36)	N		N	6.67	197.47	98.06	202.93	0.00	0.50	1.03

6, 2 (37)	N		P(0-25%)	22.23	187.90	137.41	279.37	0.00	0.73	1.49	
6, 3 (38)	N		N	57.00	175.83	128.92	231.79	0.00	0.73	1.32	
6, 4 (39)	N		N	51.30	331.25	178.80	120.43	0.00	0.54	0.36	
6, 5 (40)	N		N	62.87	228.72	163.40	199.11	0.00	0.71	0.87	
6, 6 (41)	N		N	20.01	206.12	208.84	224.90	0.00	1.01	1.09	
			control average	49.75	238.57	148.79	211.91		0.67	0.94	
			S.D.	32.86	69.00	34.56	59.72		0.24	0.29	
Summary											
			average and S.D.								
tissue	slice #	# of voxels	Myo-inositol	Choline	Creatine	NAA	Lac	Area Cr/Cho	Area NAA/Cho		
tumor	#4	1	19.9	344.7	149.2	120.1	0.00	0.43	0.35		
UBO	#1	1	43.70	347.45	140.68	252.33	0.00	0.40	0.73		
UBO	#2	6	53.5, 13.0	414.0, 96.0	227.6, 57.0	261.9, 47.3	0.00	0.56, 0.10	0.68, 0.27		
UBO	#3	17	74.4, 28.6	303.9, 102.9	190.9, 55.1	187.1, 37.4	0.00	0.67, 0.22	0.69, 0.29		
UBO	#4	4	57.3, 20.8	272.9, 13.7	170.6, 37.8	192.5, 37.8	0.00	0.63, 0.16	0.71, 0.17		
control	#1	23	61.0, 58.7	216.4, 62.4	148.0, 50.0	237.5, 33.7	0.00	0.70, 0.21	1.18, 0.36		
control	#2	7	54.0, 17.2	227.7, 87.8	140.9, 44.4	224.6, 48.5	0.00	0.70, 0.32	1.15, 0.51		
control	#3	11	93.7, 68.9	182.5, 48.7	131.3, 46.2	201.0, 48.3	0.00	0.74, 0.25	1.17, 0.40		
control	#4	17	49.8, 32.9	238.6, 69.0	148.8, 34.6	211.9, 59.7	0.00	0.67, 0.24	0.94, 0.29		

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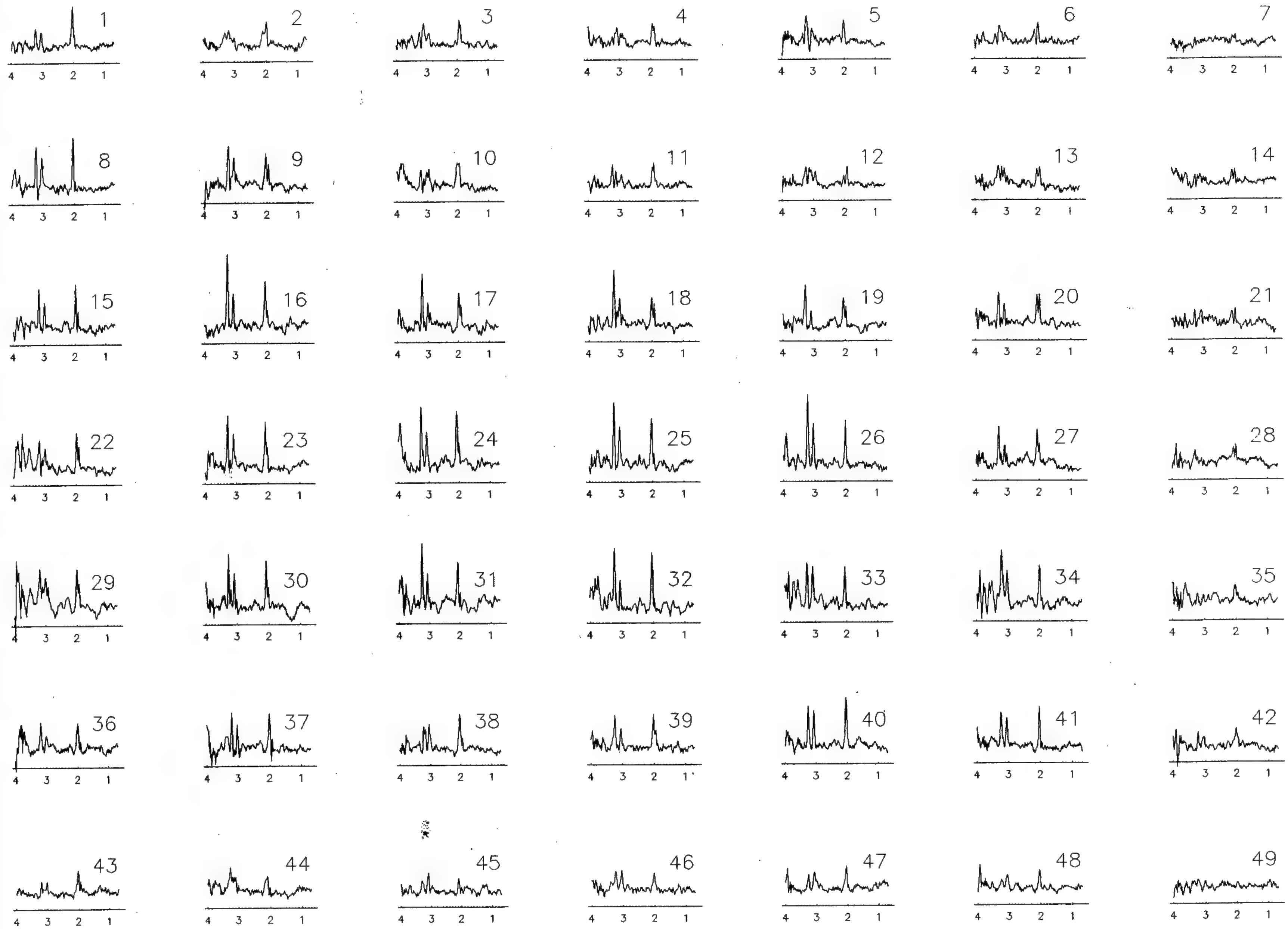

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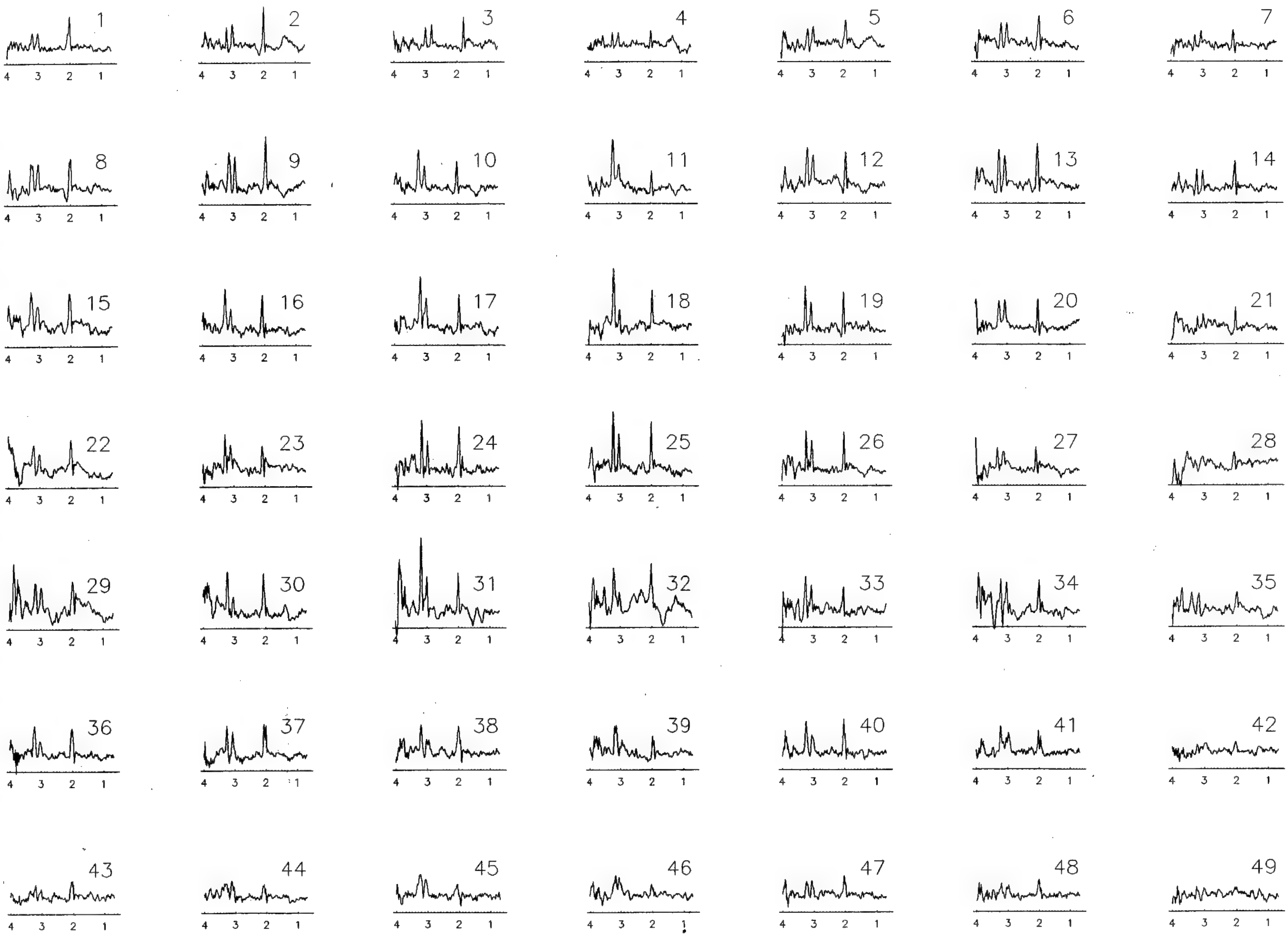
/home2/tumtum/wang/NF1/P1904/ _9-12-96-37.dat

/home2/tumtum/wang/NF1/P1904/ _9-12-96-39.dat



9-12-96.

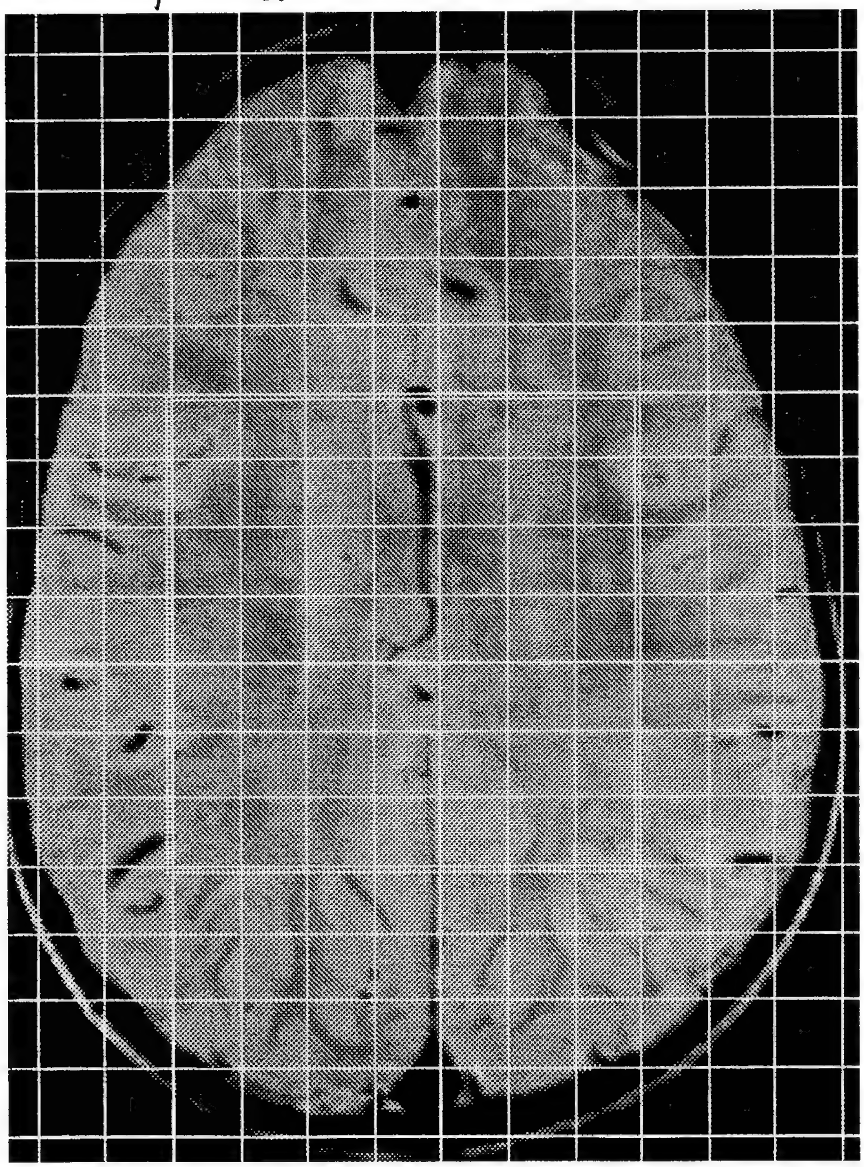
~~SE~~
HSI_SE_CSI_135.

1904-3-32. ima

$\begin{cases}\Delta x = 0.1 \\ \Delta y = 0.8\end{cases}$

$\begin{cases}\Delta imx = -8. \\ \Delta imy = -13.\end{cases}$

i= 1
2
3
4
5
6
7

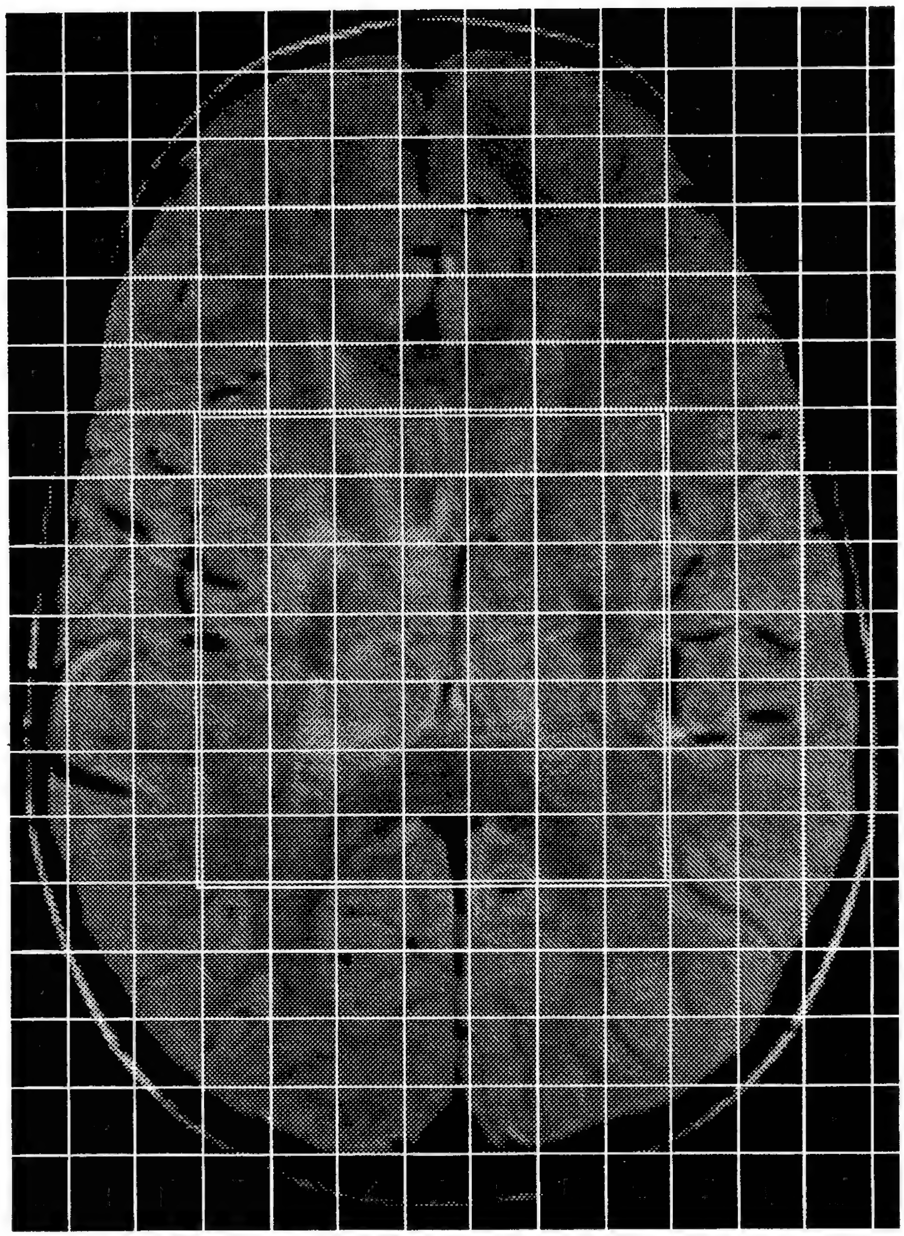


j=1 2 3 4 5 6 7

9-12-96

$\begin{cases} \Delta x = 0 \\ \Delta y = 0 \end{cases}$ $\begin{cases} \Delta imx = -8 \\ \Delta imy = -13 \end{cases}$

1904-3-34.ima

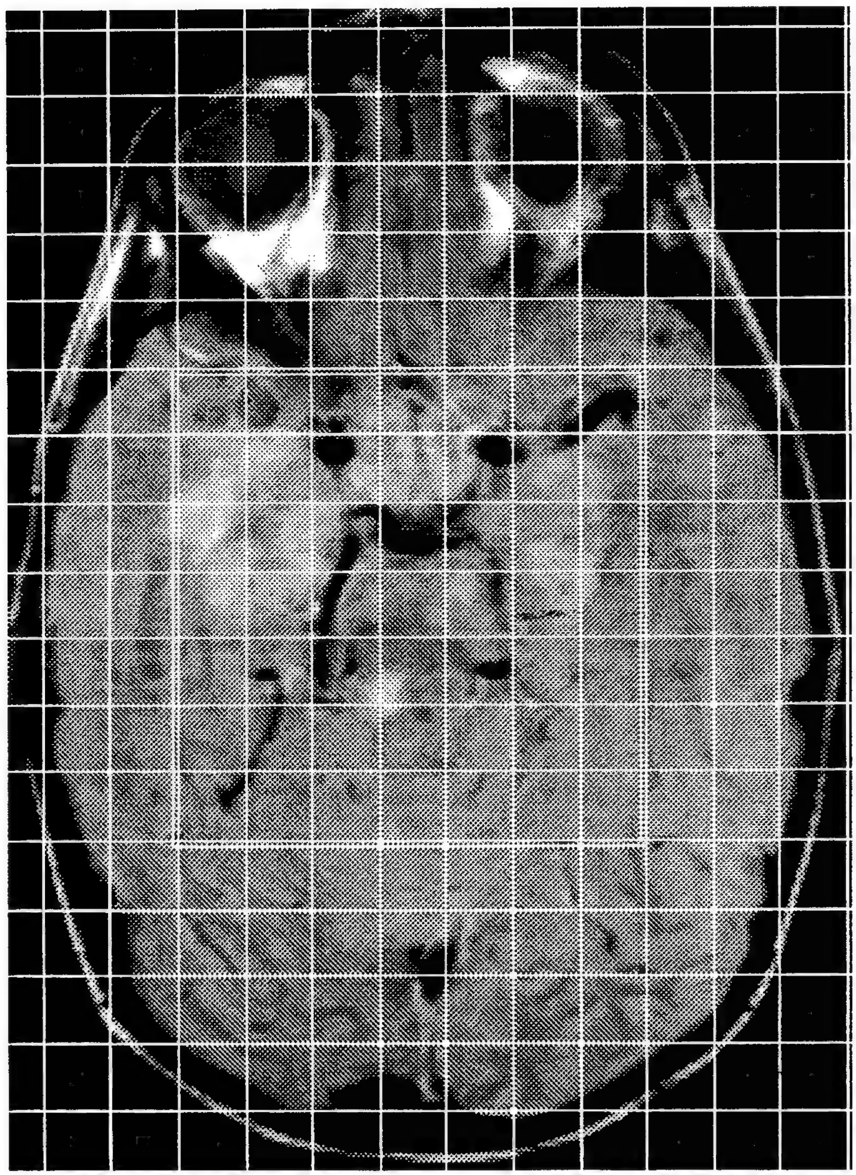


7-12-96

ΔX=0
ΔY=0

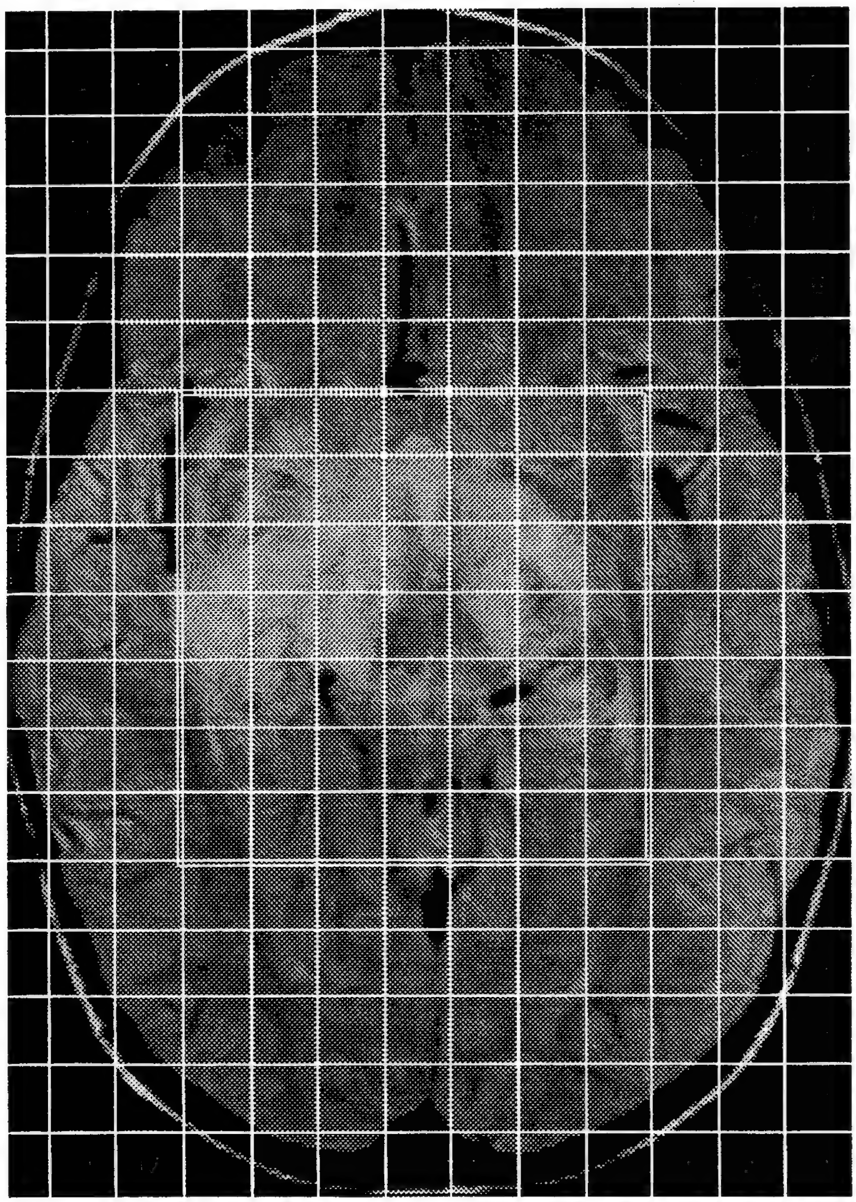
Δimx=-8
Δimy=-13

1904-3-39.ima



$\begin{cases} \Delta x=0 \\ \Delta y=0 \end{cases}$ $\begin{cases} \Delta imx=-8 \\ \Delta imy=-13 \end{cases}$

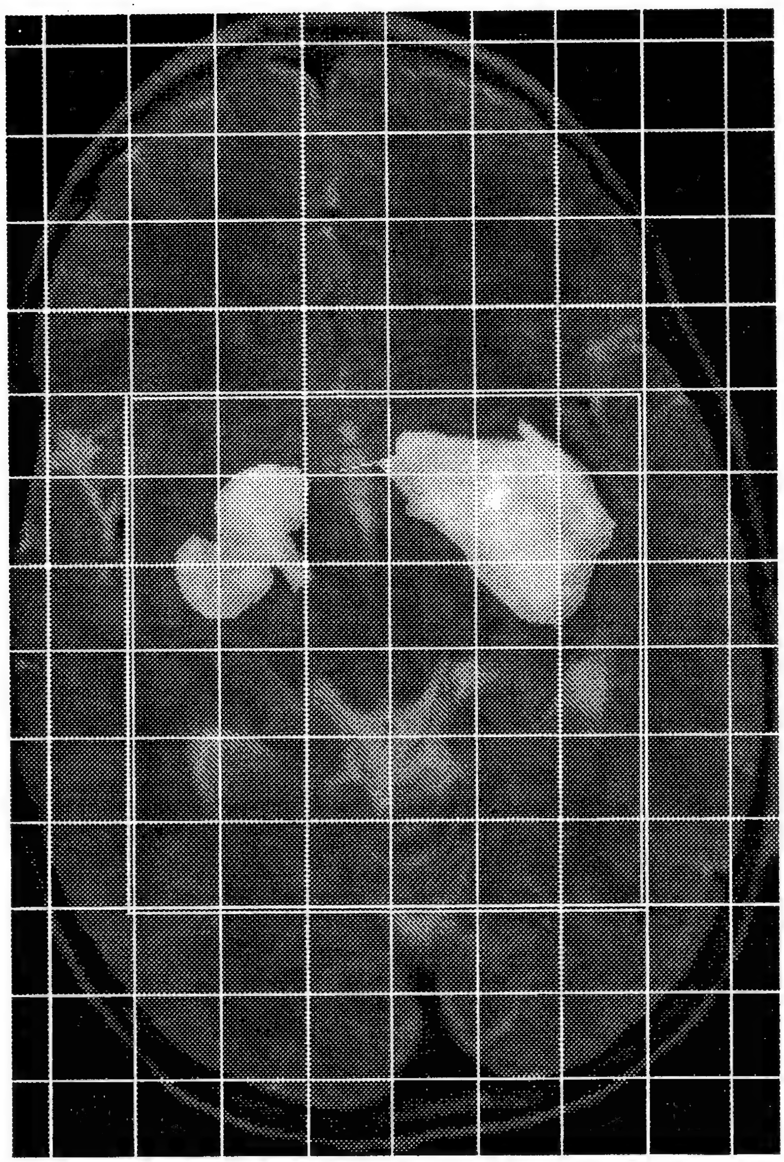
1904-3-37.ima



#301 #1

NF-1 MRS data summary									
Patient ID #		CSI array size	6x6	MR Scanner:	SP				
MR #		ROI dimension:	x = 84 mm						
Date of birth	Dec-12-90		y = 84 mm						
Date of MRS	May-7-94		z = 12 mm						
Head circumference		ROI position:	Px = -7.3 mm						
tumor location			Py = -10.8 mm						
control location			Pz = -26.5 mm						
Date of MRS processing	Sep-16-95	voxel shift:	DPx = 2.0 mm						
			DPy = 1.0 mm						
Metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	P (0-25%)		N	1.05	1.52	3.94	5.78	4.37	3.35
1, 3 (3)	N		P (0-25%)	2.1	1.46	2.46	3.88	0.77	4.42
1, 4 (4)	P (25-50%)		N	2.06	1.57	2.84	4.63	0.18	2.29
1, 5 (5)	P (25-50%)		N	1.09	1.53	2.96	5.75	0	3.12
2, 2 (8)	P (75-100%)		N	2.35	2.01	1.7	3.22	5.93	3.03
2, 3 (9)	N		P (0-25%)	2.6	1.87	1.88	3.55	3.84	1.17
2, 4 (10)	P (75-100%)		N	1.55	1.47	2.02	0.71	1.07	1.82
2, 5 (11)	Y		N	0.33	1.58	1.12	0.66	2.85	1.05
3, 2 (14)	P (25-50%)		N	2.61	1.87	2.25	5.49	0	3.66
3, 3 (15)	N		N	2.83	1.29	2.11	5.34	0	4.54
3, 4 (16)	N		N	1.94	1.26	3.08	1.85	1.81	2.67
3, 5 (17)	P(50-75%)		N	1.3	2.11	2.16	3.54	4	0.89
4, 2 (20)	N		N	1.24	1.03	3.11	5.29	2.16	5.86
4, 3 (21)	N		P (25-50%)	1.7	0.79	2.46	4.69	0	3.98
4, 4 (22)	N		P (25-50%)	1.67	0.94	1.79	1.67	0	1.67
4, 5 (23)	N		N	2.42	1.29	3.51	3.56	3.23	2.59
5, 2 (26)	N		P(0-25%)	1.33	0.89	2.07	3.93	1.33	3.4
5, 3 (27)	N		P(0-25%)	0.96	0.67	2.63	2.78	0.25	2.09
5, 4 (28)	N		P(50-75%)	2.06	1.18	4.61	0.57	5.67	2.17
5, 5 (29)	N		N	0.76	0.76	4.23	4.39	0.94	4.65
6, 2 (32)	N		N	1.47	0.8	3.15	4.67	1.28	4.5
6, 3 (33)	N		N	1.88	0.94	3.59	3.92	0.63	3.69
6, 4 (34)	N		N	1.6	1.08	3.31	4.47	0	3.58
6, 5 (35)	N		N	2.7	0.92	3.61	5.33	0	4.27

√ 7/15/96

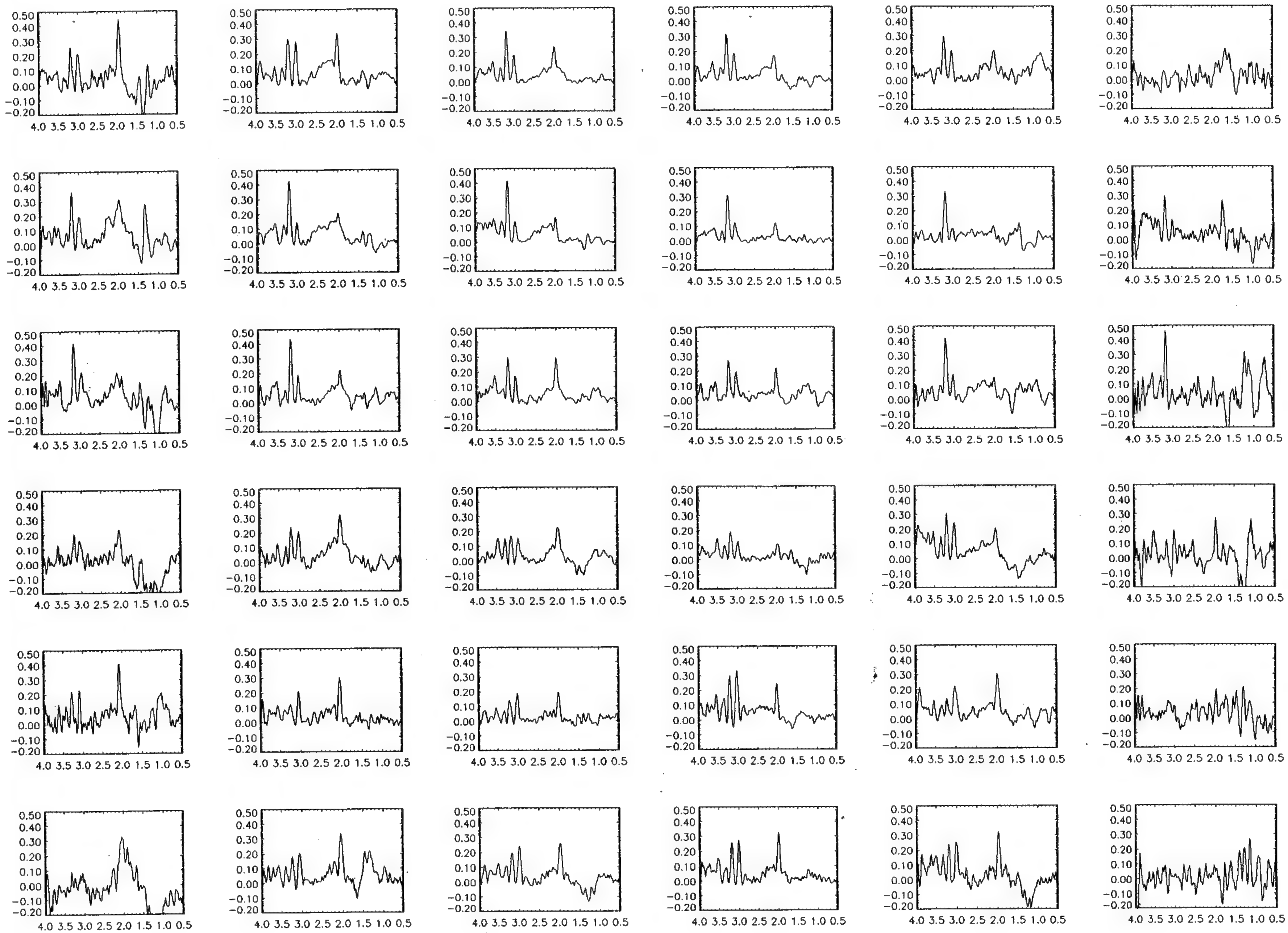


5-7-94 , 74-95

$$p = \begin{cases} -7.3 \\ -10.8 \\ -26.5 \end{cases} \quad D = \begin{cases} 84 \\ 84 \\ 12 \end{cases} \quad sh = \begin{cases} 2 \\ 1 \end{cases}$$

5-7-94

9-4-95

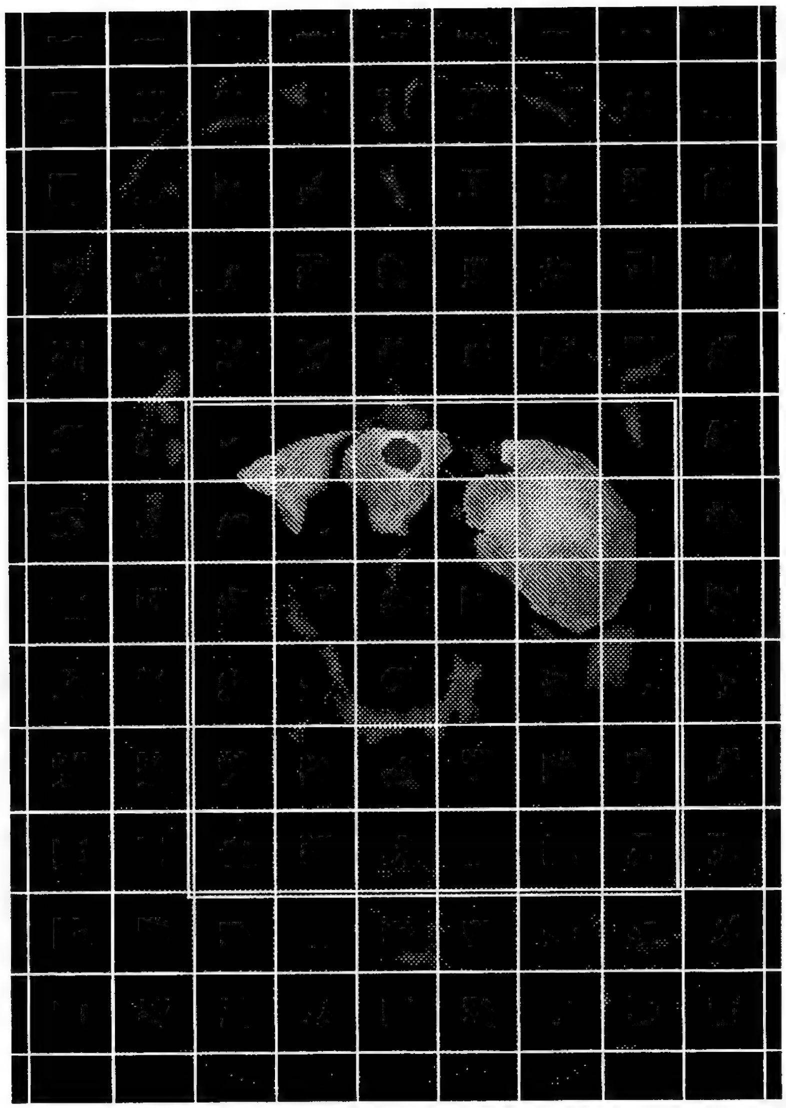


301. 1st study

_11_18_94

NF-1 MRS data summary									
Patient ID #		CSI array size	6x6	MR Scanner:	SP				
MR #		ROI dimension:	x = 84 mm						
Date of birth	Dec-12-90		y = 84 mm						
Date of MRS	Nov-18-94		z = 12 mm						
Head circumference		ROI position:	Px = 0.5 mm						
tumor location			Py = -10.4 mm						
control location			Pz = -34.0 mm						
Date of MRS processing	Sep-5-95	voxel shift:	DPx = 3.0 mm						
			DPy = -7.0 mm						
Metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 4 (4)	P (0-25%)		N	3.47	1.66	3.89	4.56	0.67	3.06
1, 5 (5)	P (25-50%)		N	0	1.8	2.46	0	5.19	1.49
2, 4 (10)	P (50-75%)		N	0.41	2.23	2.02	1.34	6.08	0.83
2, 5 (11)	Y		N	1.99	1.44	2.88	0.6	2.47	1.84
3, 4 (16)	P (0-25%)		N	1.9	2.02	2.9	3.65	4.96	2.13
3, 5 (17)	P (50-75%)		N	2.46	2.05	3.63	1.04	0.9	0
4, 4 (22)	N		P (0-25%)	1.64	1.71	3.91	1.81	0	2.65
4, 5 (23)	N		N	1.06	1.01	2.84	3.31	2.15	3.07
5, 4 (28)	N		N	2.05	1.32	4.26	2.48	5.55	3.41
5, 5 (29)	N		N	0.04	1.68	4.22	1.26	1.29	3.65
6, 4 (34)	N		N	2.63	2.13	6.3	4.46	0.03	5.83
6, 5 (35)	N		N	1.24	0.77	4.11	3.16	0.23	3.01

W- entered file 4/96

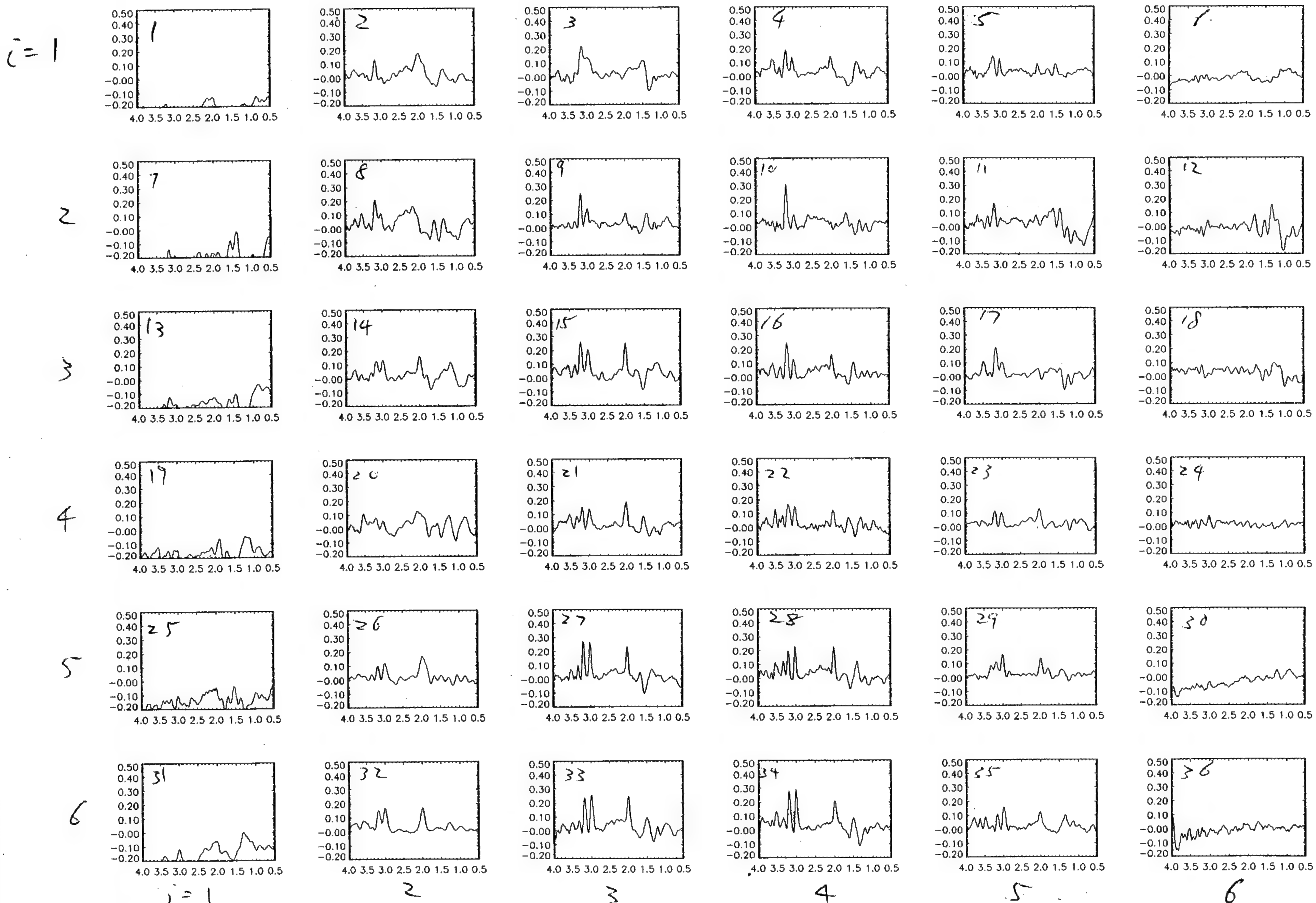


11-18-94 . 9-5-95

$p = \begin{cases} 0.5 \\ -10.4 \\ -34 \end{cases}$; $D = \begin{cases} 84 \\ 84 \\ 12 \end{cases}$ shift $= \begin{cases} 3.0 \\ -7.0 \end{cases}$

ssition #1.

11-18-94. 7-5-95. position #1



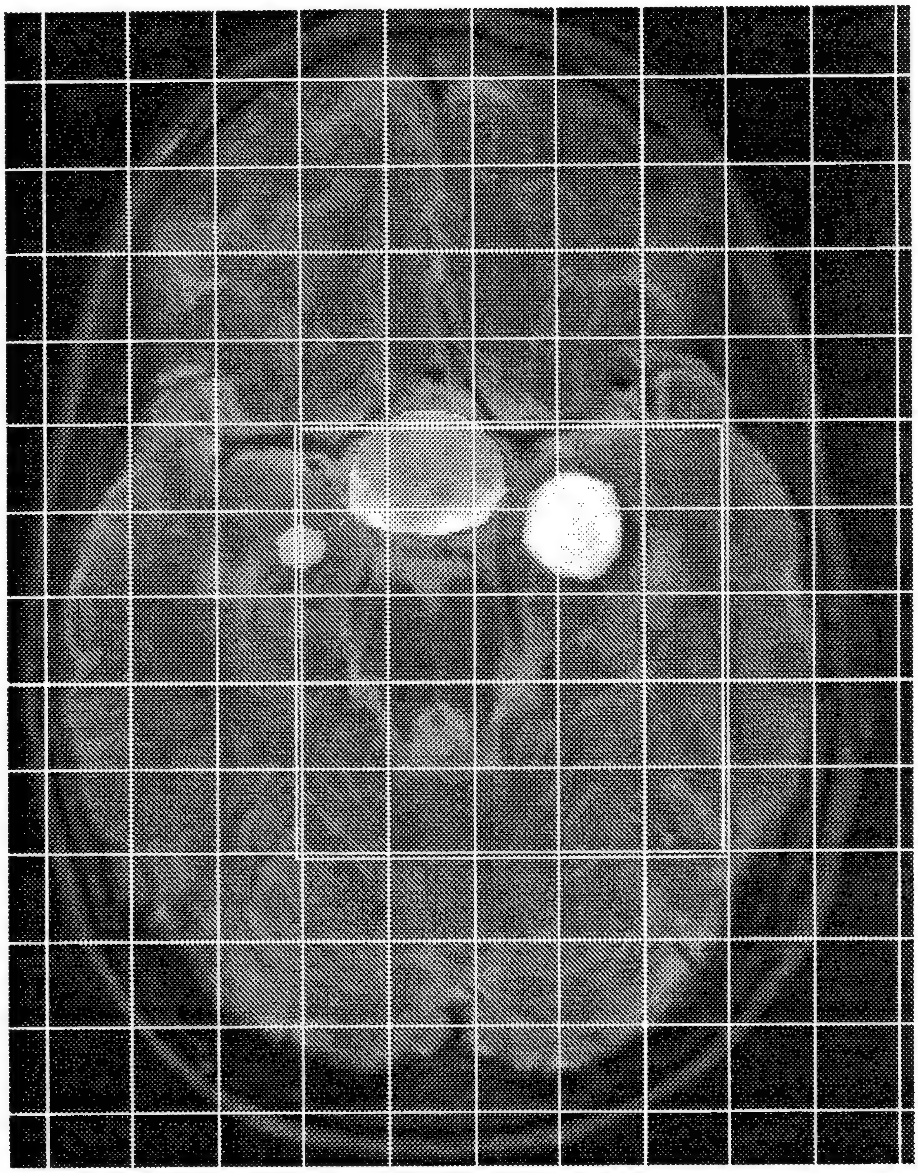
-21_11_18-94.dat

301 #B3

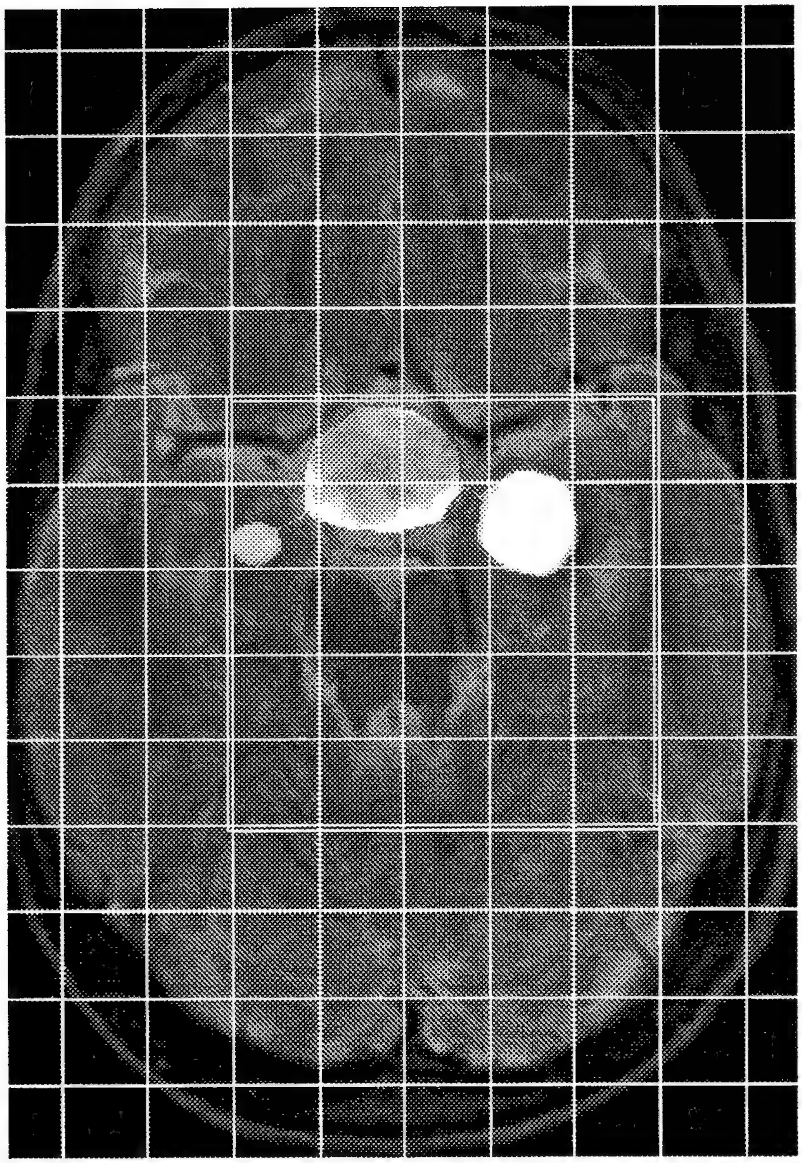
NF-1 MRS data summary									
Patient ID #		CSI array size	5x5	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	Dec-12-90		y = 70 mm						
Date of MRS	Aug-18-95		z = 12 mm						
Head circumference		ROI position:	Px = 11.6 mm						
tumor location			Py = -7.0 mm						
control location			Pz = 19.8 mm						
Date of MRS processing	Sep-15-95								
Metabolite levels									
grid position #1	voxel shift:	DPx = 4.0 mm							
		DPy = -3.0 mm							
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	Y		N	data not good	data not good	data not good	data not good	data not good	data not good
2, 2 (7)	P (25-50%)		N	1.44	0.51	1.08	16.1	0	10.9*
3, 2 (12)	N		N	4.01	2.06	4.19	0	15.4	0*
4, 2 (17)	N		P(25-50%)	1.34	0.98	2.16	15.2	0	17.7*
5, 2 (22)	N		N	2.24	2.09	5.36	9.3	10.1	5*
grid position #2	voxel shift:	DPx = 0.0 mm							
		DPy = 1.0 mm							
1, 4 (4)	P(0-25%)		P(0-25%)	data not good	data not good	data not good	data not good	data not good	data not good
2, 4 (9)	Y		N	1.88	1.16	1.75	2.08	0.29	3.63
3, 4 (14)	N		N	2.85	1.29	1.59	2.8	6.28	3.12
4, 4 (19)	N		N	1.7	0.88	3.77	6.39	0	2.25
5, 4 (24)	N		N	3.02	2.26	7.72	13.6	6.28	6.57
* lipid contaminated, values are not reliable.									

7-15-96 Re-entered Shule

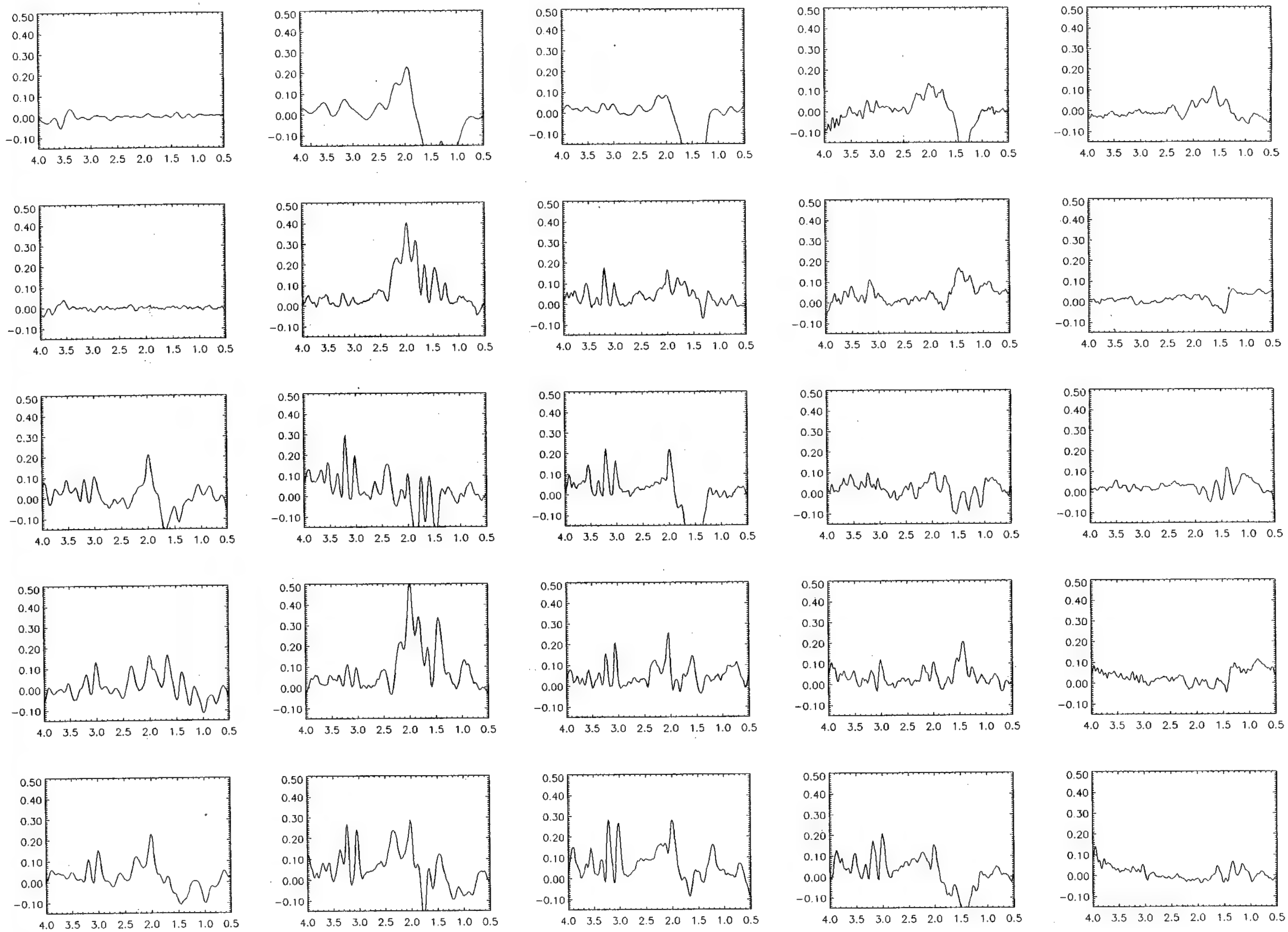
8-18-95.
processed 9-12-95
position #1



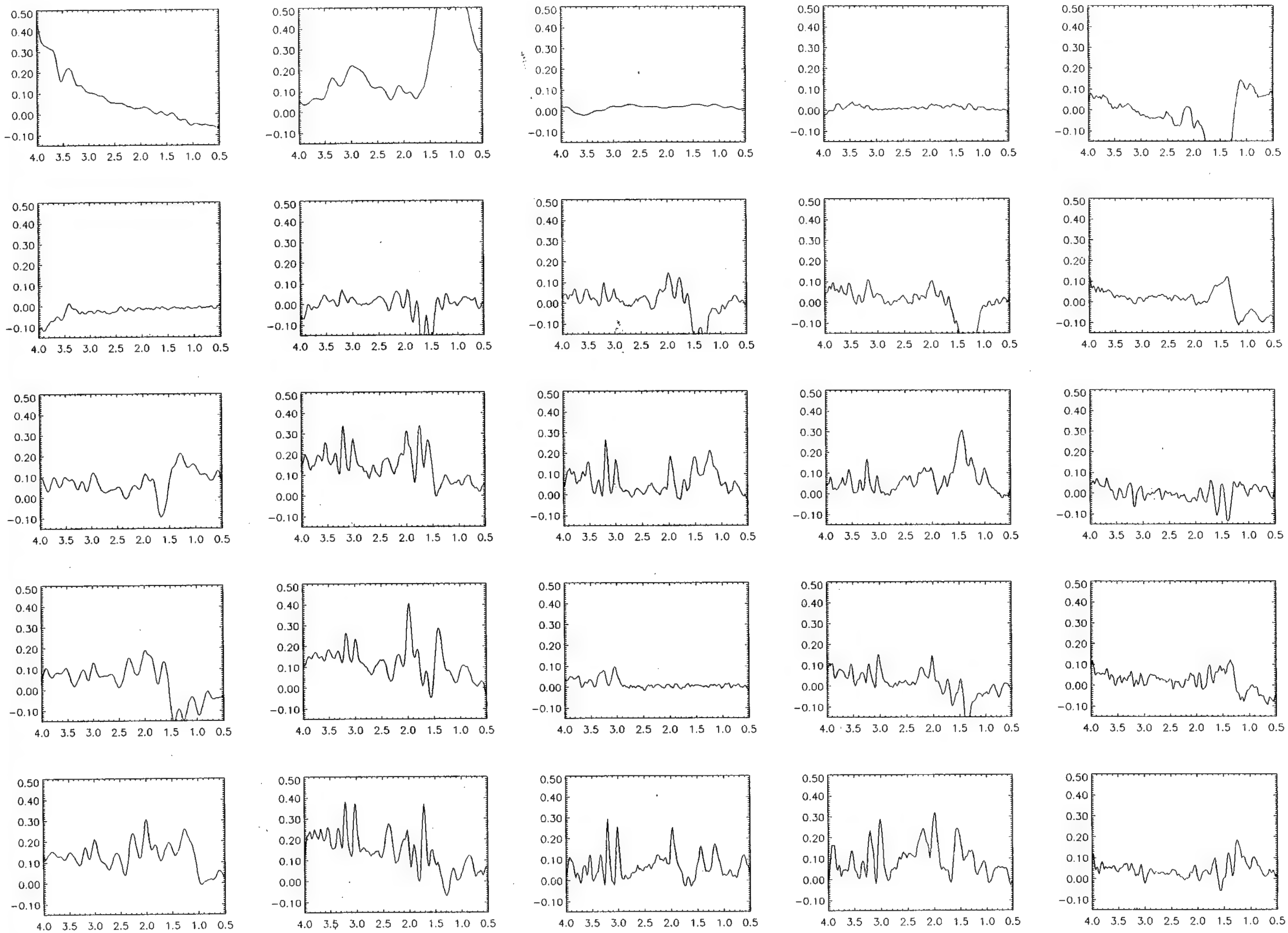
8-18-55
processed 9-12-95
position #2



8-18-95 position #1



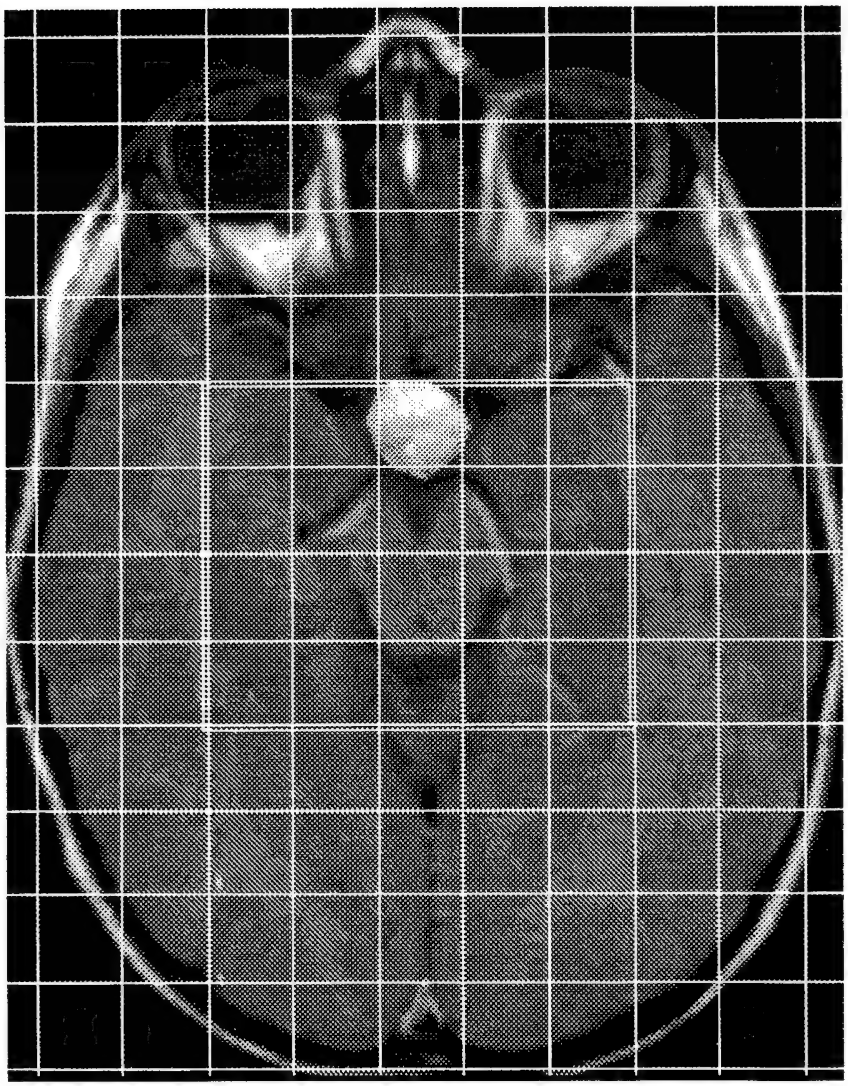
8-18-95 grid position #2



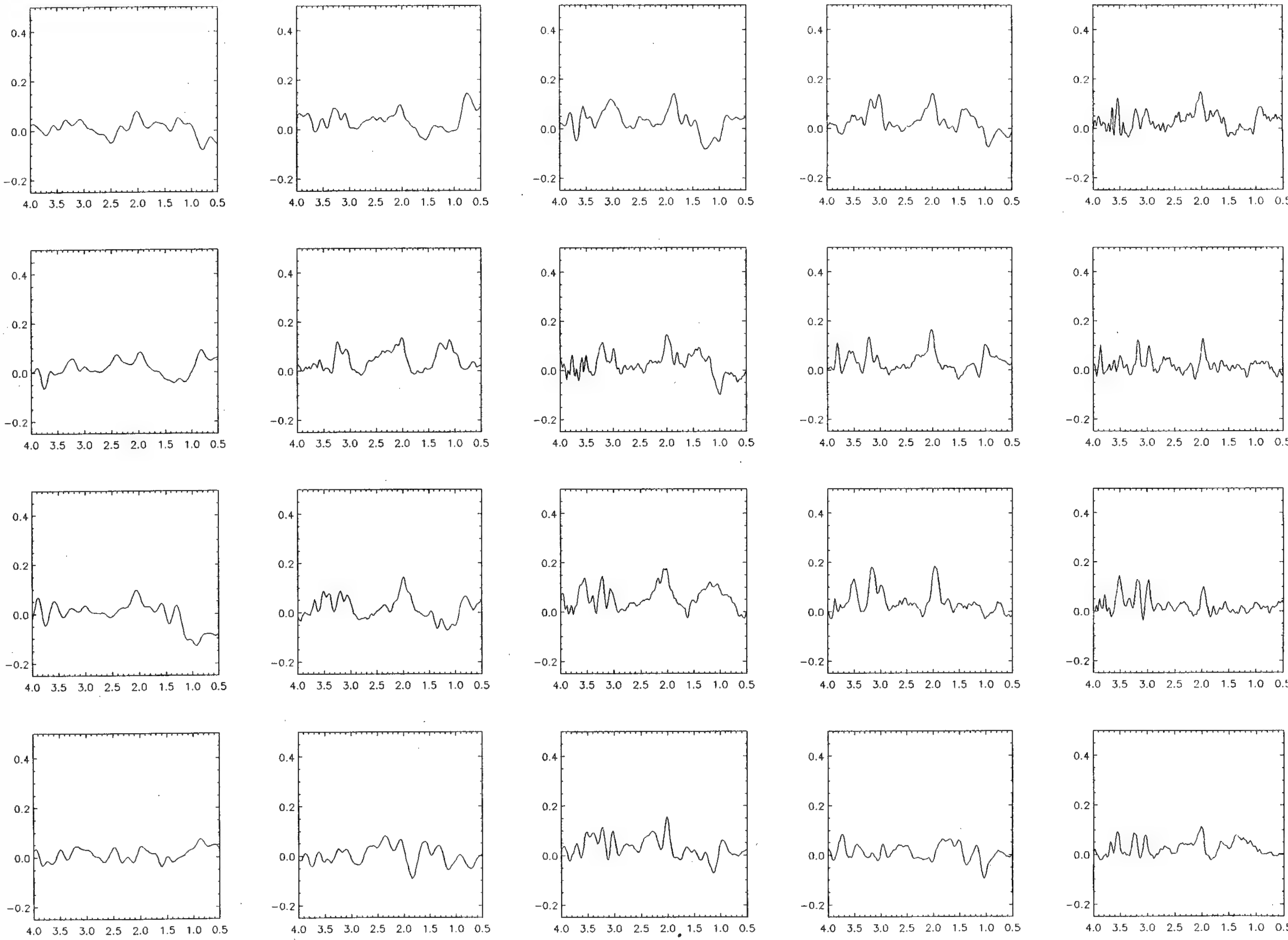
_4_11_96 # 304 1st MRS Entered [illegible]

NF-1 MRS data summary											
Patient ID #		CSI array size	5x4	MR Scanner:	SP						
MR #		ROI dimension:	x = 70 mm								
Date of birth	Jul-26-93		y = 56 mm								
Date of MRS	Apr-11-96		z = 12 mm								
Head circumference		ROI position:	Px = 5.6 mm								
tumor location			Py = 5.3 mm								
control location			Pz = 0.0 mm								
Date of MRS processing	Apr-20-96	voxel shift:	DPx = 0.0 mm								
			DPy = 0.0 mm								
metabolite levels											
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	NAA	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)								
				ino	cho	cre	glu	gln	naa		
1, 2 (2)	N		P(0-25%)	-	1.03502	2.8563	0.472322	4.63344	4.75861	0.91988561	1.53253399
1, 3 (3)	Y		P(0-25%)	-	0.681539*	8.14864*	0	3.45755	6.04851	#VALUE!	#VALUE!
1, 4 (4)	N		P(0-25%)	1.10944	1.23694	5.48838	3.29659	0	6.55912	1.47902081	1.7675662
2, 2 (6)	N		P(0-25%)	0.589844	1.182	4.77795	3.92504	4.94036	4.78629	1.34741963	1.34977157
2, 3 (7)	N		P(0-25%)	1.46288	1.35021	2.19831	3.04453	0	6.05107	0.54270817	1.49385898
2, 4 (8)	N		P(0-25%)	1.50307	1.33077	1.87734	4.56874	0.353817	5.36494	0.47023903	1.34381849
3, 2 (12)	N		P(0-25%)	1.55538	0.909907	1.74287	0	3.0853	8.51965	0.63847917	3.12106988
3, 3 (13)	N		N	2.77688	1.46035	3.10082	0.835653	4.4159	8.5336	0.7077801	1.94784355
3, 4 (14)	N		P(0-25%)	2.86543	2.01841	5.05897	0	4.76562	9.03696	0.83547115	1.49242225
* : poor shim at the tumor voxel. values not reliable											

4-11-96



4-11-96



1st MRS

#206 -

NF-1 MRS data summary

Patient ID #		CSI array size	5x5	MR Scanner.	SP
MR #		ROI dimension:	x = 70 mm		
Date of birth	Mar-30-92		y = 70 mm		
Date of MRS	Jun-20-96		z = 12 mm		
Head circumference		ROI position:	Px = 5.4 mm		
tumor location			Py = -3.5 mm		
control location			Pz = 2.1 mm		
Date of MRS processing	Jun-22-96	voxel shift:	DPx = -3.0 mm		
			DPy = 3.0 mm		

metabolite levels

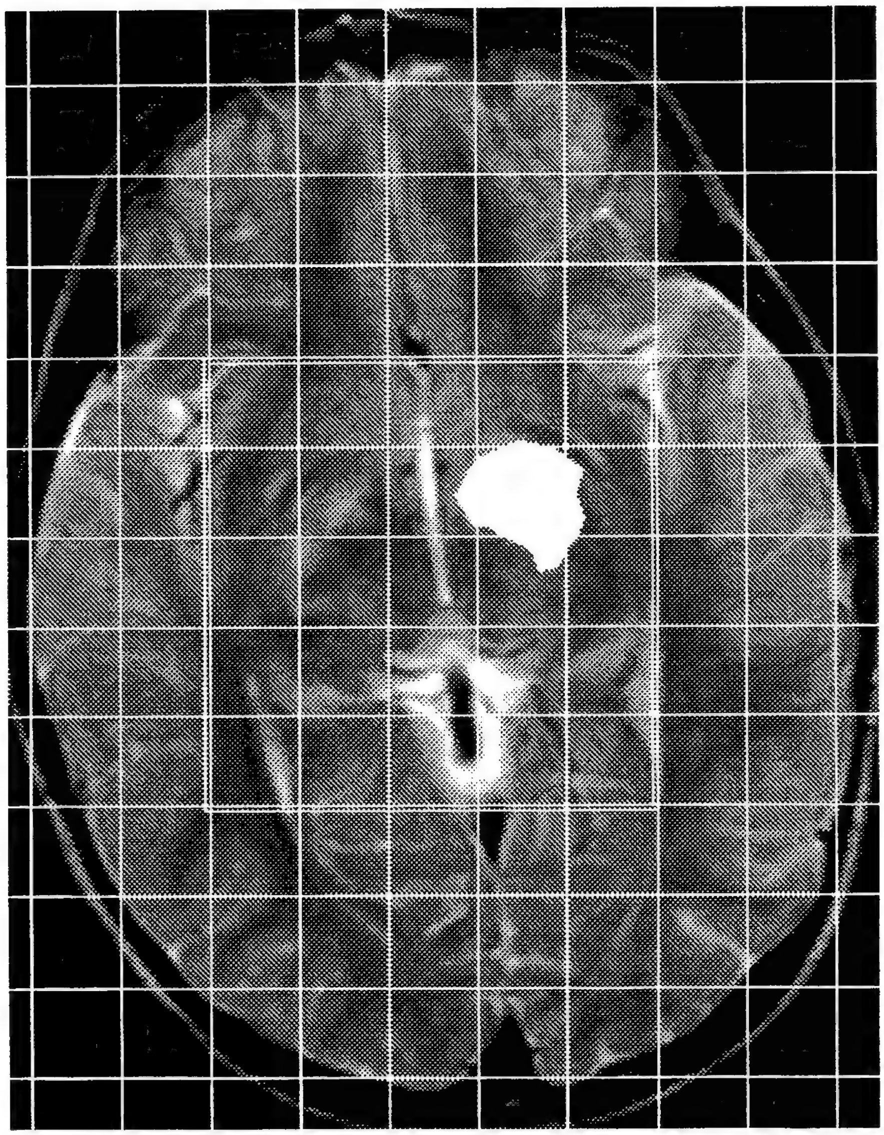
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	NAA	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)								
1, 2 (2)	N		N	1.14259	0.808414	4.67968	0	2.53063	5.50423	1.92957239	2.26955908
1, 4 (4)	N		N	0.785444	1.31934	4.27049	2.64162	5.2997	5.6349	1.07894604	1.42366638
2, 2 (7)	N		N	2.71897	1.61153	2.90061	11.2005	0	5.45677	0.59997021	1.12869344
2, 3 (8)	P(0-25%)		P(0-25%)	2.32232	1.88946	3.03184	11.5604	0	5.13421	0.53486887	0.9057632
2, 4 (9)	Y		N	1.47784	1.74166	2.7671	0	4.72707	3.0216*	0.52959054	0.5782
3, 2 (12)	N		N	3.07901	1.9632	5.76913	5.99716	0	5.4458	0.9795453	0.92464684
3, 3 (13)	N		P(0-25%)	3.8008	2.04602	5.83562	2.2208	0.28201	7.0517	0.9507271	1.14884833
3, 4 (14)	P(0-25%)		N	1.52684	1.5757	5.54442	8.48115	0	4.64158	1.17290093	0.98190857
4, 2 (17)	N		N	4.07563	1.51191	4.77114	2.84031	1.48782	5.59026	1.05190124	1.232494
4, 3 (18)	N		P(0-25%)	0.671366	0.719445	2.42949	6.55542	2.17737	1.4212	1.12563156	0.65847053
4, 4 (19)	N		N	0.55569	0.608246	2.54741	4.06775	2.0272	2.46952	1.39604151	1.35335593
5, 2 (22)	N		N	2.83663	0.967942	4.24998	3.01363	2.19253	7.00466	1.46357943	2.41221754
5, 3 (23)	N		P(0-25%)	1.04416	0.811794	3.17166	0	7.20756	4.93668	1.30232547	2.02706598
5, 4 (24)	N		P(0-25%)	1.43671	0.490612	3.06223	1.08361	3.13119	3.16847	2.08055109	2.15273305

* NAA level may be contaminated by lipids.

6-20-96

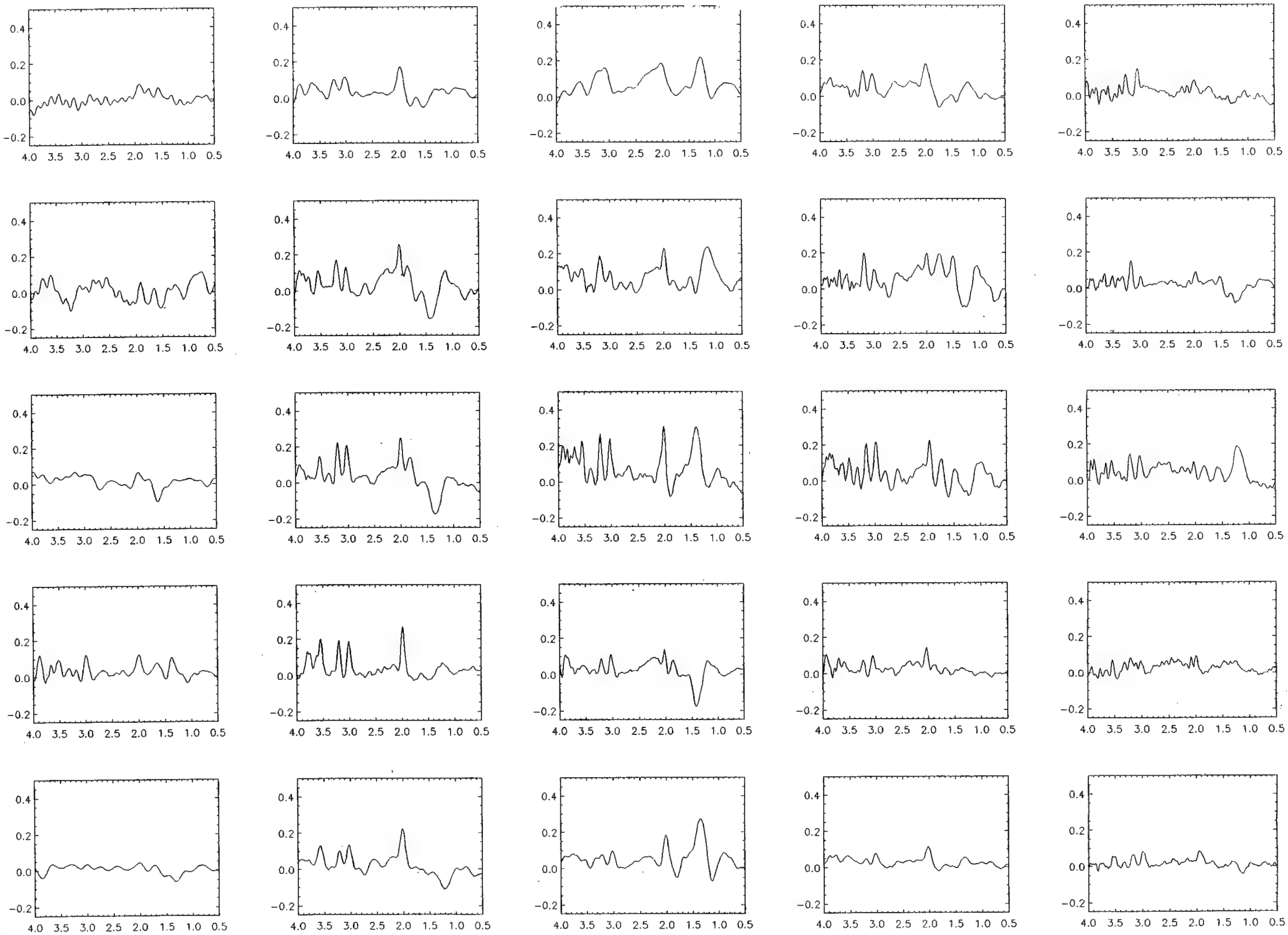
NF-1

grid shift $\begin{cases} \Delta x = -3 \\ \Delta y = 3 \end{cases}$



6-20-96

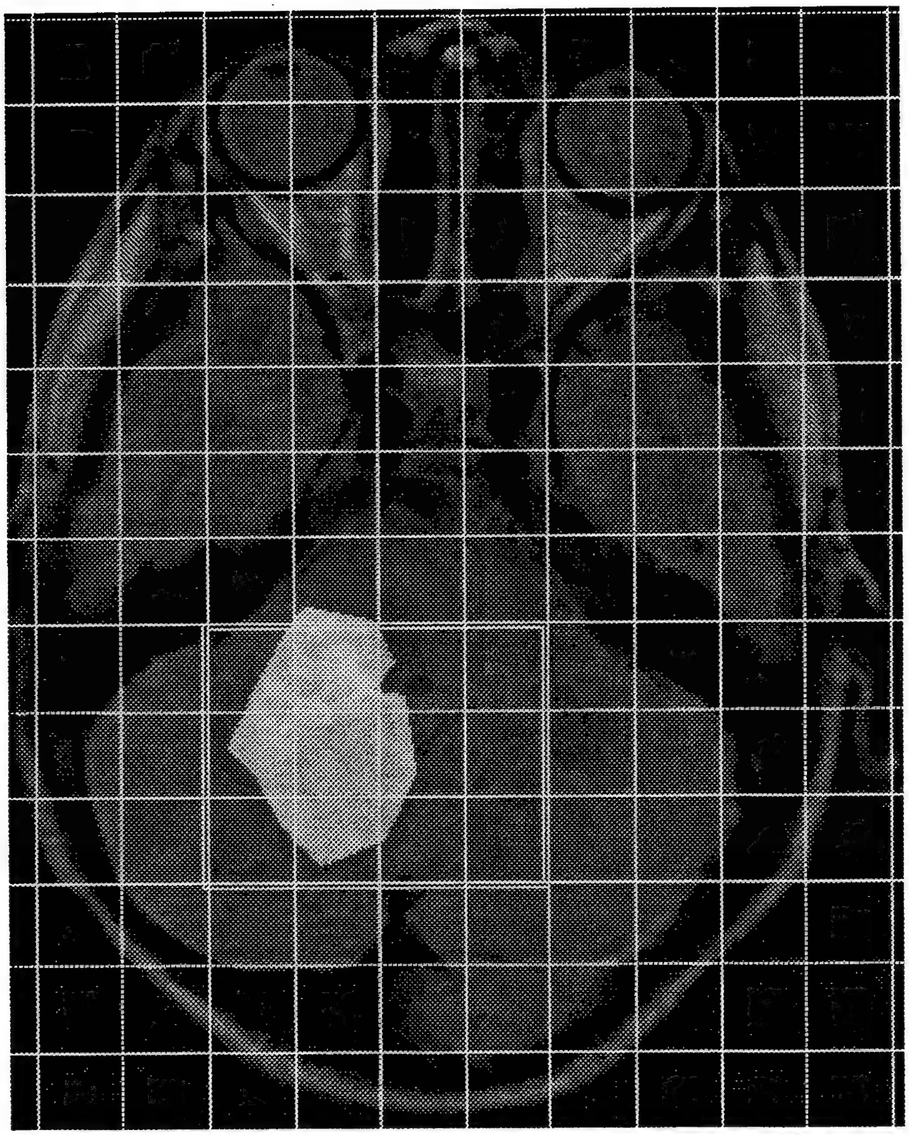
KF_1



15 Study 401

NF-1 MRS data summary									
Patient ID #		CSI array size	4x3	MR Scanner:	SP				
MR #		ROI dimension:	x = 56 mm						
Date of birth	Aug-8-89		y = 42 mm						
Date of MRS	May-5-94		z = 12 mm						
Head circumference		ROI position:	Px = 1.3 mm						
tumor location	cerebellum		Py = -28.8 mm						
control location			Pz = 32.4 mm						
Date of MRS processing	Sep-4-95								
grid position#1									
voxel shift:	DPx = -7 mm								
	DPy = -4 mm								
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	Y		N	2.54	2.37	3.14	3.27	0	2.22
1, 3 (3)	P (0-25%)		N	11.8	1.54	2.5	1.62	0.49	3.2
2, 2 (6)	Y		N	3.52	2.52	4.5	4.29	0	6.16
2, 3 (7)	P (25-50%)		N	1.93	1.82	5.09	1.57	7.82	4.23
3, 2 (10)	P (50-75%)		N	not quatifiable	2.11	5.36	0	5.33	4.48
grid position#2									
voxel shift:	DPx = 0 mm								
	DPy = -4 mm								
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 3 (3)	N		N	11.7	1.99	1.83	4.46	0	2.26
2, 3 (7)	N		N	1.98	1.91	8.57	4.69	10.6	2.79

Jed 8WV
72896



$i=1$

2

3

$j=1$ 2 3 4

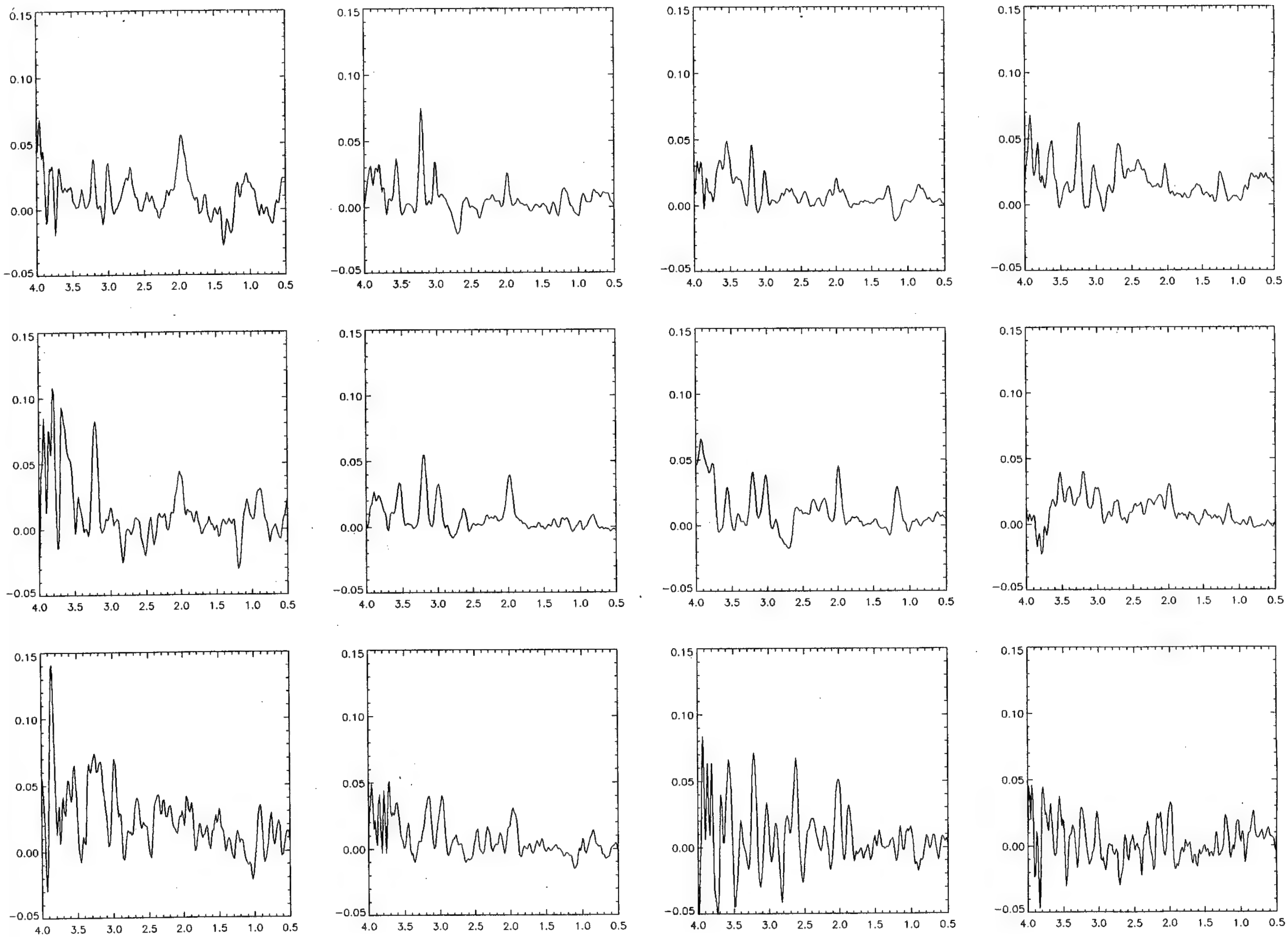
5-5-94

position #1

$$P = \begin{cases} 1.3 \\ -28.8 \\ 32.4 \end{cases} \qquad p = \begin{cases} 56 \\ 42 \\ 12 \end{cases} \qquad \text{shift} = \begin{cases} -7 \\ -4 \end{cases}$$

image # 38

5-5-94 9-4-95 position #1



5-5-94

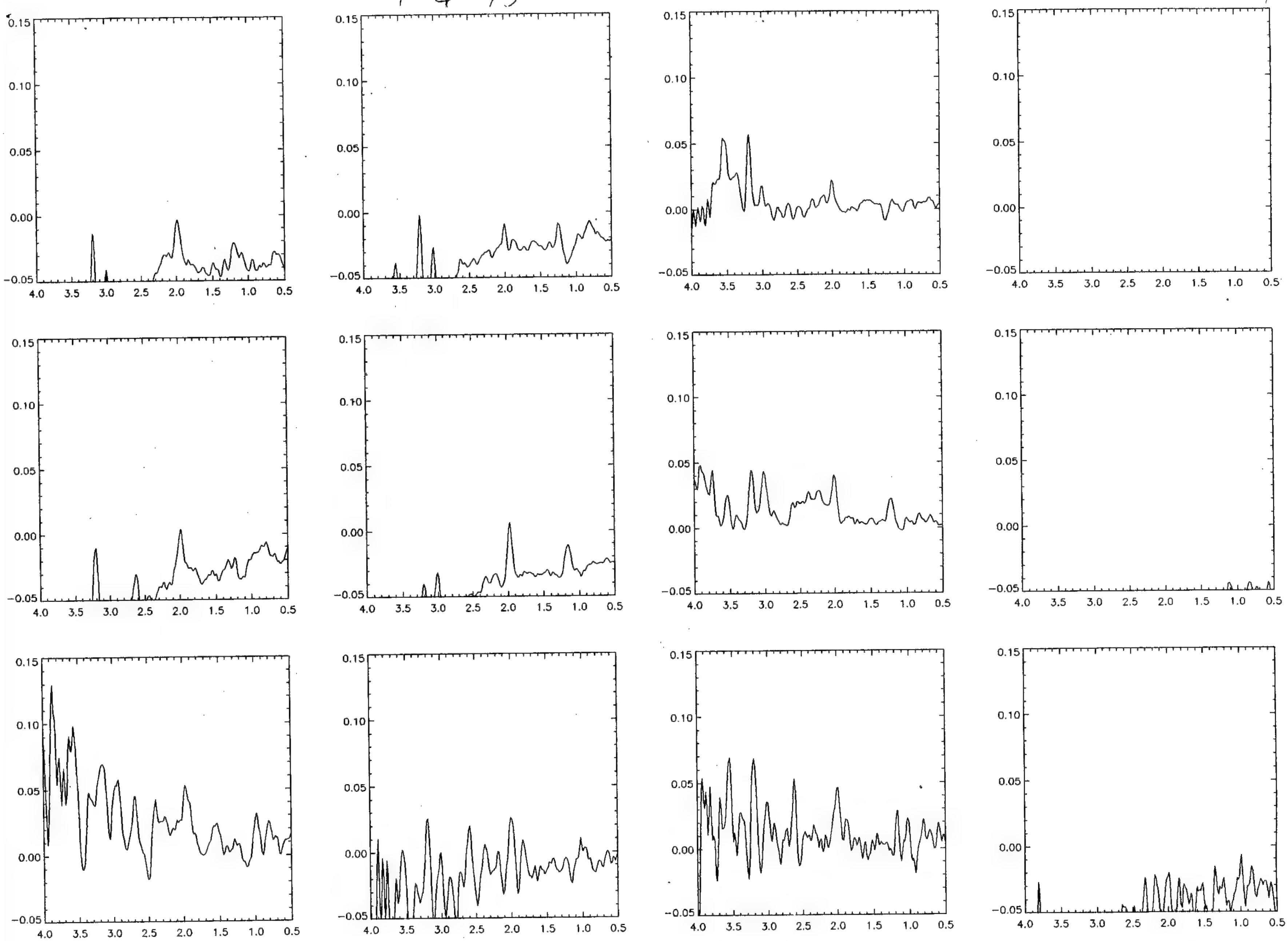
shift = $\begin{cases} 0 \\ -4. \end{cases}$

position #2

5-5-94
9-4-95

shift = $\begin{cases} 0 \\ -4 \end{cases}$

position #2



_4_7_95

2nd Study 401

NF-1 MRS data summary									
Patient ID #		CSI array size	4x4	MR Scanner:	SP				
MR #		ROI dimension:	x = 60 mm						
Date of birth	Aug-8-89		y = 56 mm						
Date of MRS	Apr-7-95		z = 15 mm						
Head circumference		ROI position:	Px = -13.6 mm						
tumor location	cerebellum		Py = -30.3 mm						
control location			Pz = 45.6 mm						
Date of MRS processing	Sep-4-95	voxel shift:	DPx = -10 mm						
			DPy = -2.0 mm						
Metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	P (25-50%)		P (0-25%)	4.41	2.47	5	0.45	1.78	4.72
1, 3 (3)	N		N	5.89	3.19	6.73	0	9.64	6.59
1, 4 (4)	N		N	1.98	2.6	2.88	7.07	2.75	6.5
2, 2 (6)	Y		N	4.54	2.75	5.59	6.44	0	8.43
2, 3 (7)	P (0-25%)		P (25-50%)	4.94	1.99	5.6	6.11	3.41	3.87
2, 4 (8)	N		P (0-25%)	3.67	2.16	4	2.76	0.91	5.35
3, 3 (11)	N		N	8.65	2.36	9.94	0	3.82	8.13

Comments

(1). Absolute level normalized differently.

(2). tumor location very close to edge of ROI.

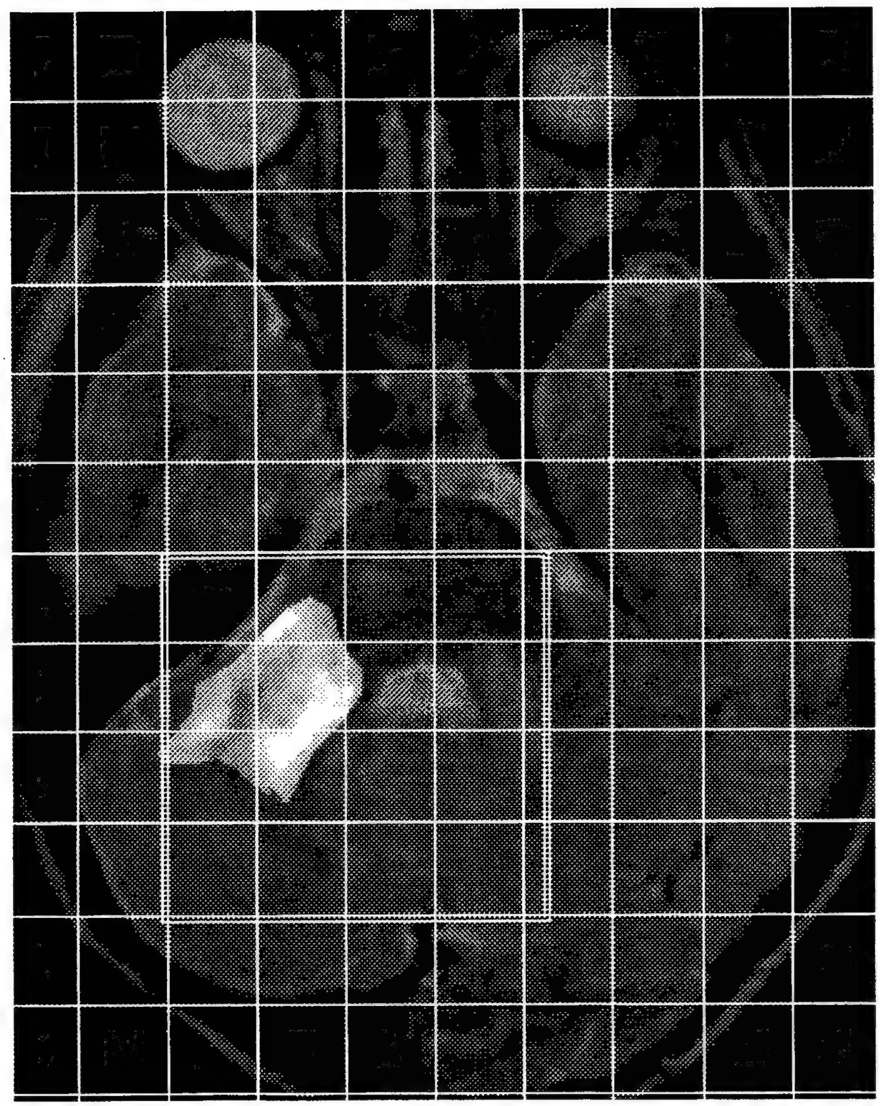
I ad SRW

i=1

2

3

4



j= 1, 2, 3, 4

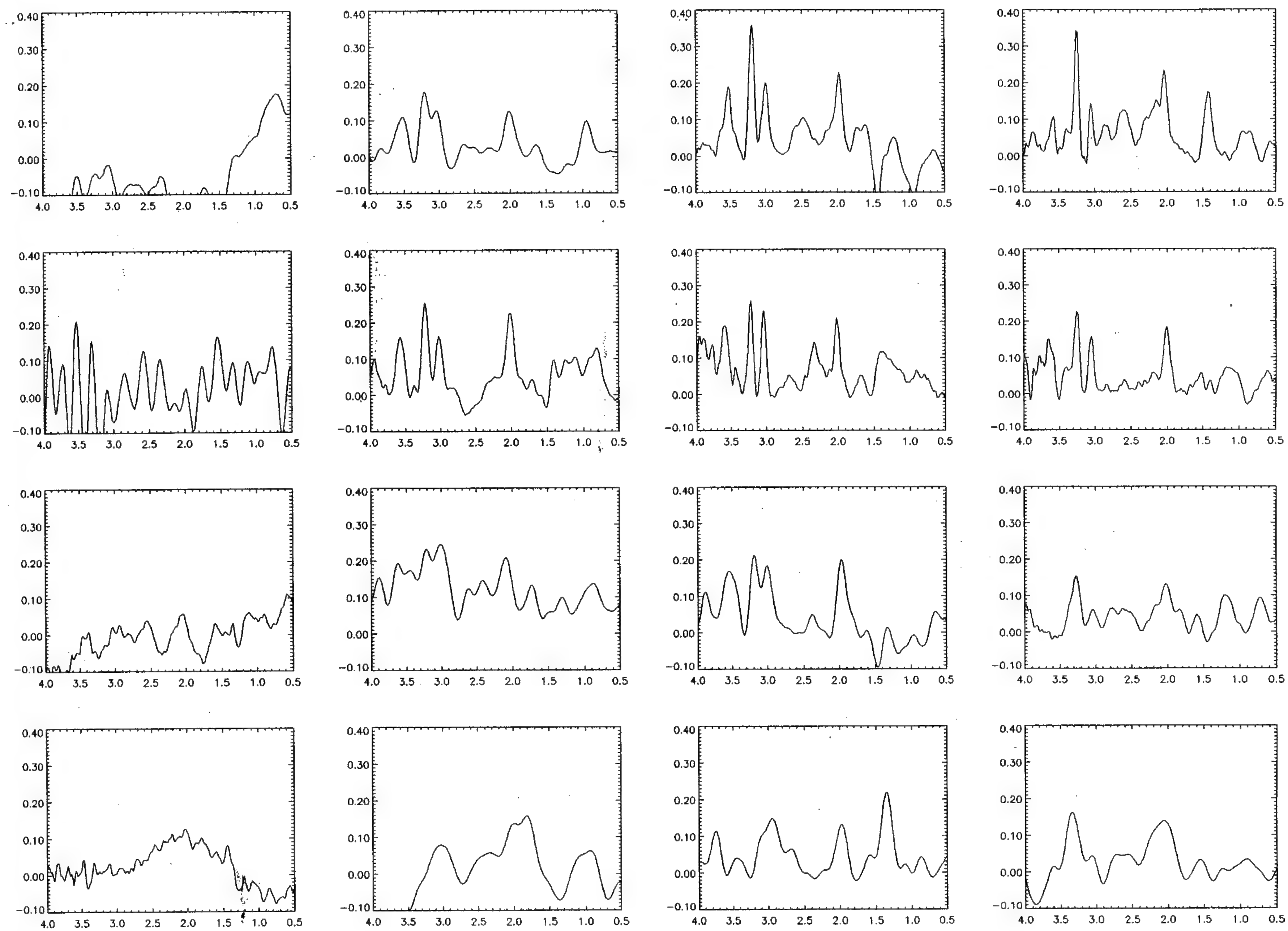
4-7-95 , 7-4-95

$p = \left\{ \begin{array}{l} -13.6 \\ -30.3 \\ 45.6 \end{array} \right.$ $D = \left\{ \begin{array}{l} 60 \\ 56 \\ 15 \end{array} \right.$ $\text{shift} = \left\{ \begin{array}{l} -10 \\ -2 \end{array} \right.$

* tumor voxel too close to edge, metabolite level decreased

4-7-95

9-4-95



 402 #7

NF-1 MRS data summary									
Patient ID #		# of voxels	5x4	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	Jan-2-86		y = 56 mm						
Date of MRS	May-14-94		z = 15 mm						
Head circumference		ROI position:	Px = -3.0 mm						
tumor location			Py = -22.0 mm						
control location			Pz = 26.3 mm						
Date of MRS processing	Sep-16-95								
metabolite levels									
grid position #1	voxel shift:	DPx = 0 mm							
		DPy = 0 mm							
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	N		N	2.93	1.67	4.46	8.46	2.43	2.54
1, 3 (3)	N		P(0-25%)	2.3	2.66	6.14	6.28	0	2.59
2, 2 (7)	P(25-50%)		N	4.24	1.95	4.61	0.32	6.05	2.31
2, 3 (8)	P(50-75%)		N	3.49	1.52	4.78	0	10.2	0.94
2, 4 (9)	P(0-25%)		N	2.77	2.27	4.96	4.83	2.48	2.15
3, 2 (12)	Y		N	3.72	1.7	4.89	2.07	0.44	1.77
3, 3 (13)	Y		N	3.96	1.52	3.16	3.76	9.76	1.95
3, 4 (14)	P(25-50%)		N	2.79	2.01	5.9	2.07	0	2.67
grid position #2	voxel shift:	DPx = -3 mm							
		DPy = 0 mm							
4, 2 (17)	Y		N	5.35	2.4	9.74	6.01	8.06	1.57
4, 3 (18)	P(50-75%)		N	4.28	1.56	4.16	3.96	1.54	4.34
4, 4 (19)	P(25-50%)		N	1.68	0.8	5.41	5.15	0.21	1.87

entered SW 7/29/96

5-14-94.

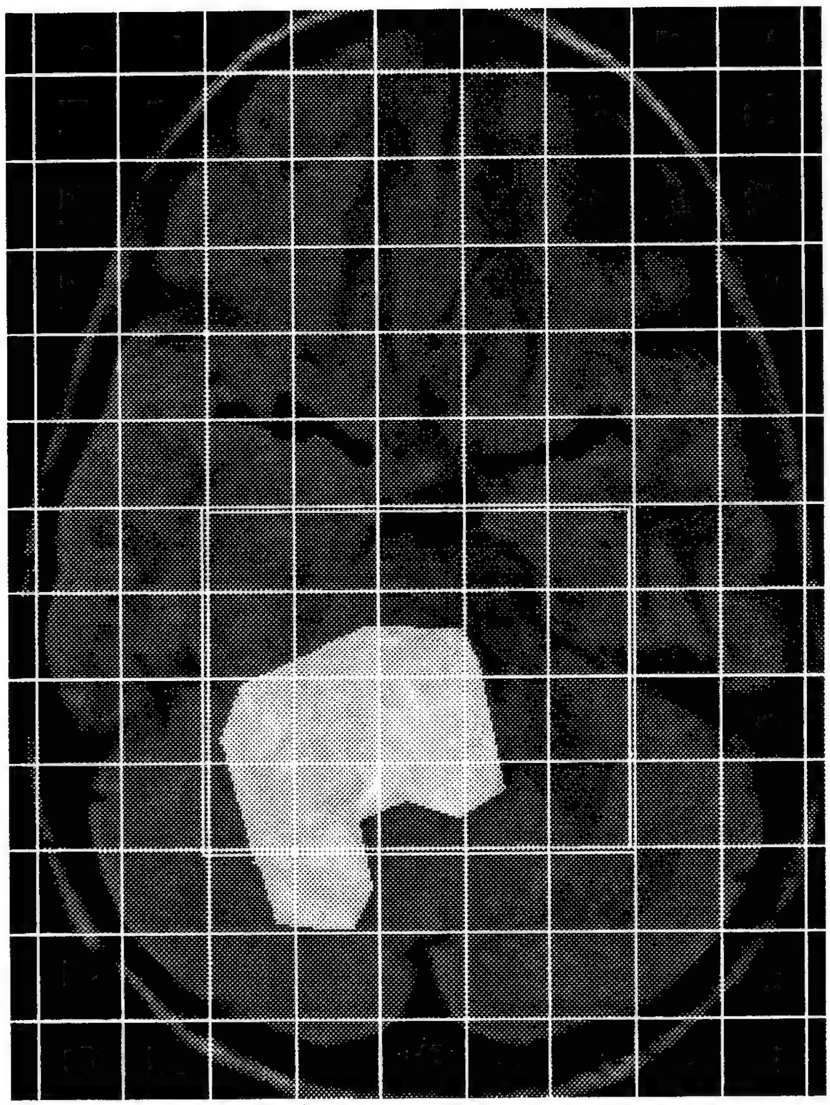
position #1. shift = 5c / 1c.

i = 1

i = 2

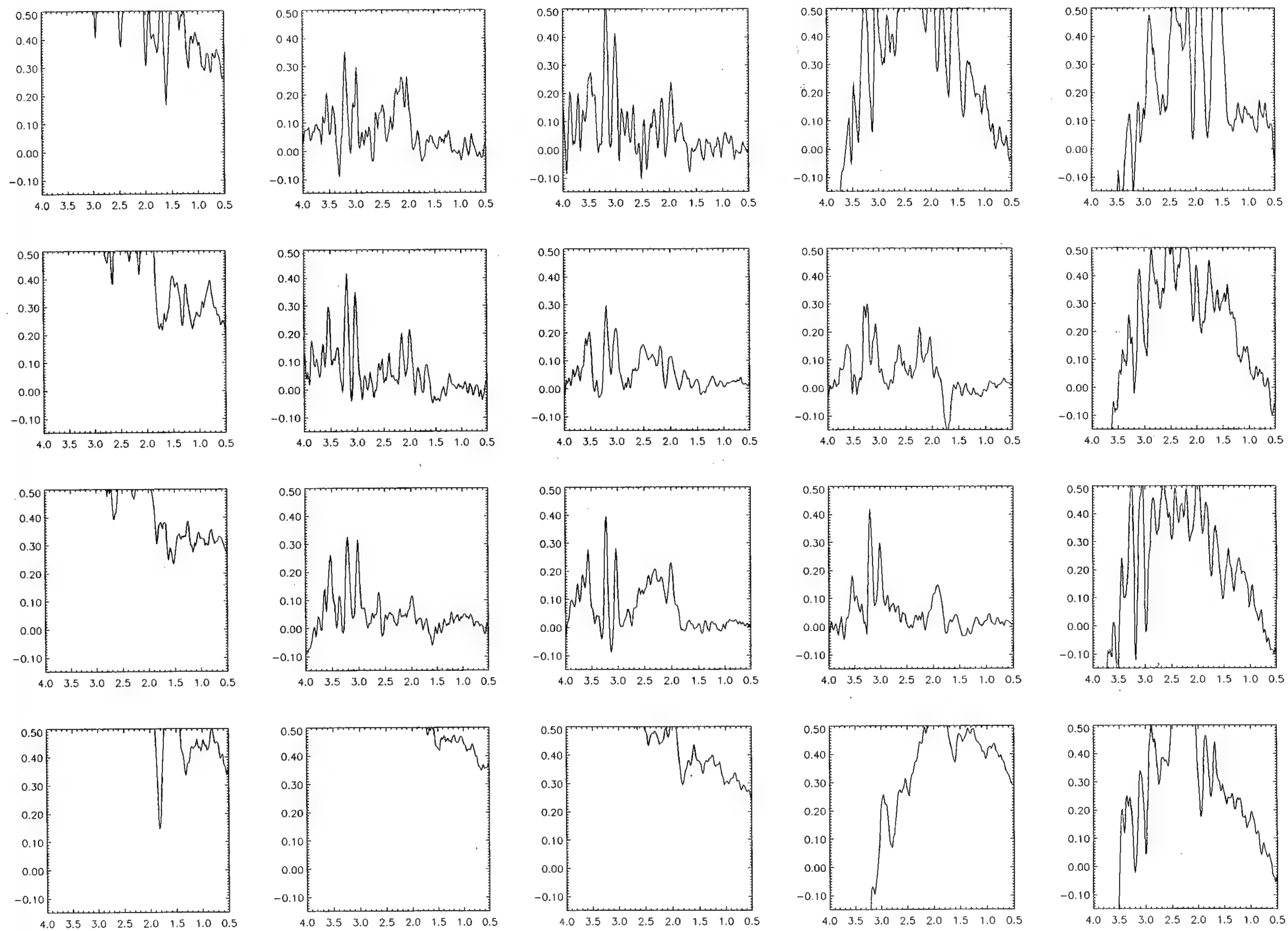
i = 3

i = 4

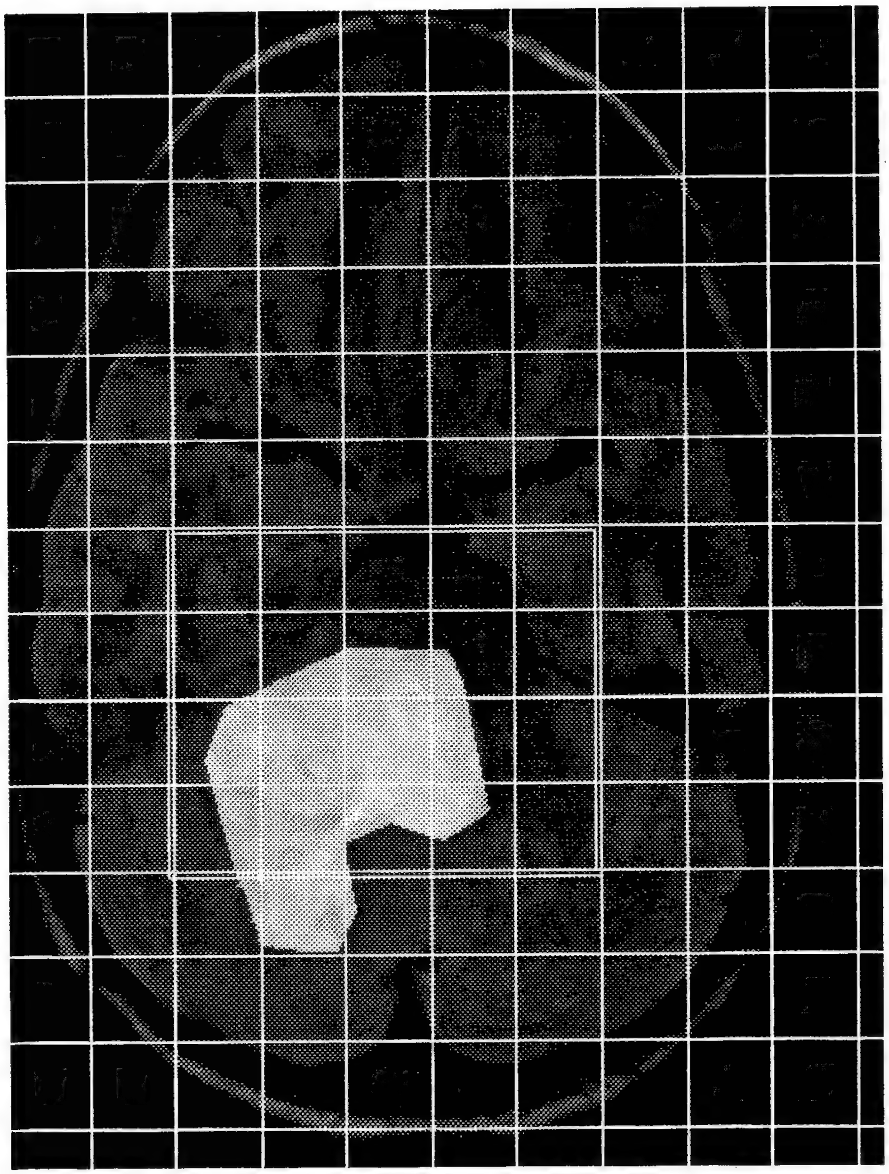


j = 1, 2, 3, 4, 5.

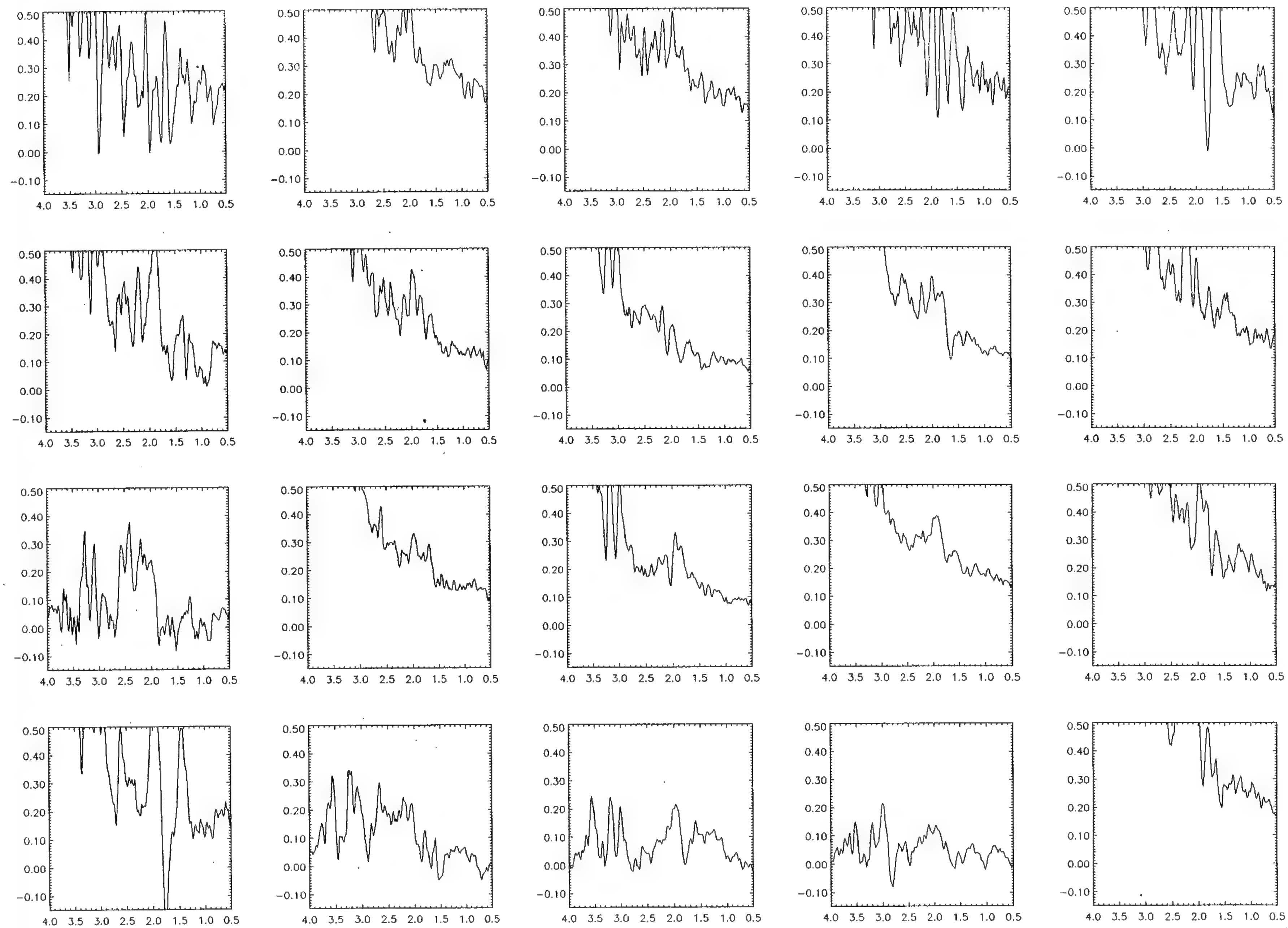
5-14-94 position #1.



5-14-94.
pos. tion #2.
shift = $\begin{cases} -3 \\ 0 \end{cases}$



5-14-94 Position #2 Shift =



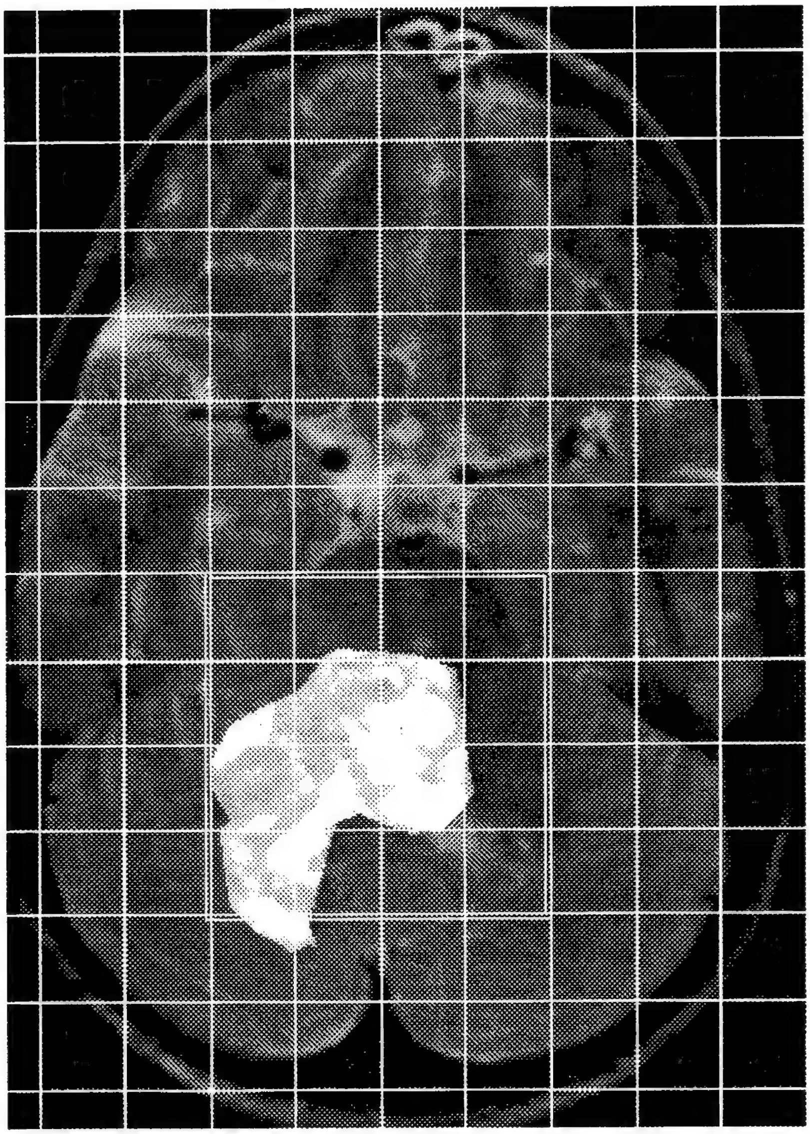
_11_16_94 #402 - #D

NF-1 MRS data summary									
Patient ID #		# of voxels	4x4	MR Scanner:	SP				
MR #		ROI dimension:	x = 56 mm						
Date of birth	Jan-2-86		y = 56 mm						
Date of MRS	Nov-16-94		z = 15 mm						
Head circumference		ROI position:	Px = 0 mm						
tumor location			Py = -35.0 mm						
control location			Pz = -18.5 mm						
Date of MRS processing	Sep-13-95	voxel shift:	DPx = -2 mm						
			DPy = 2 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	P(0-25%)		N	2.01	1.4	3.52	2.99	0	3.67
1, 3 (3)	N		N	0.82	0.69	0.85	3.03	0	2.39
2, 2 (6)	P(75-100%)		N	1.83	1.88	4.7	0	4.31	2.2
2, 3 (7)	Y		N	1.64	1.75	3.82	0	1.47	0.54
3, 2 (10)	P(75-100%)		N	2.62	1.53	4.9	0	4.58	3.01
3, 3 (11)	Y		N	2.06	1.99	2.67	0.05	2.39	2.7
4, 2 (14)	P(25-50%)		N	3.85	1.51	8.1	0	0.66	1.38
4, 3 (15)	N		N	1.7	1.2	3.96	0	2.46	0

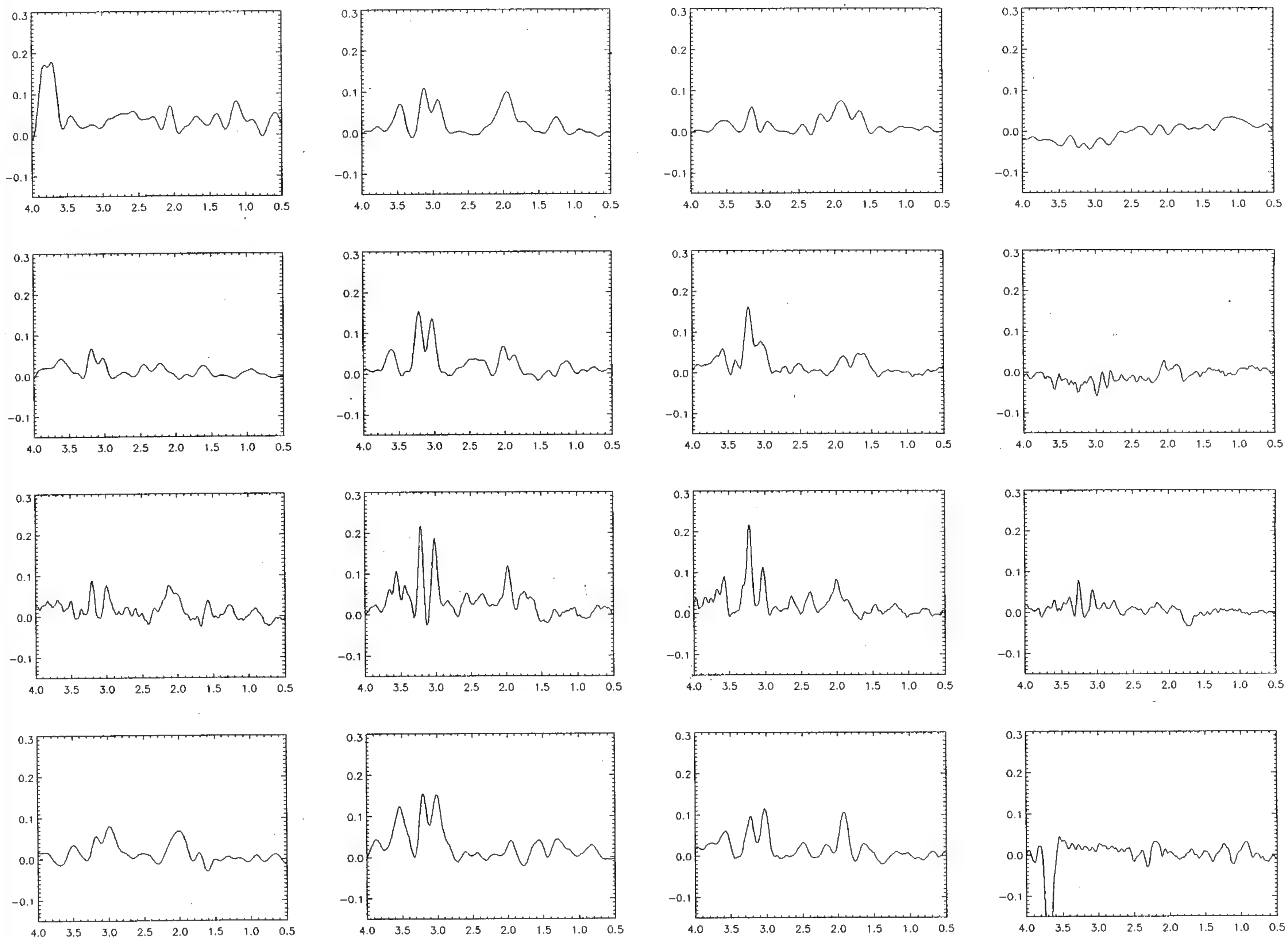
Entered - 7.24.96.

11-16-94

shift = $\begin{cases} -2 \\ -2 \end{cases}$



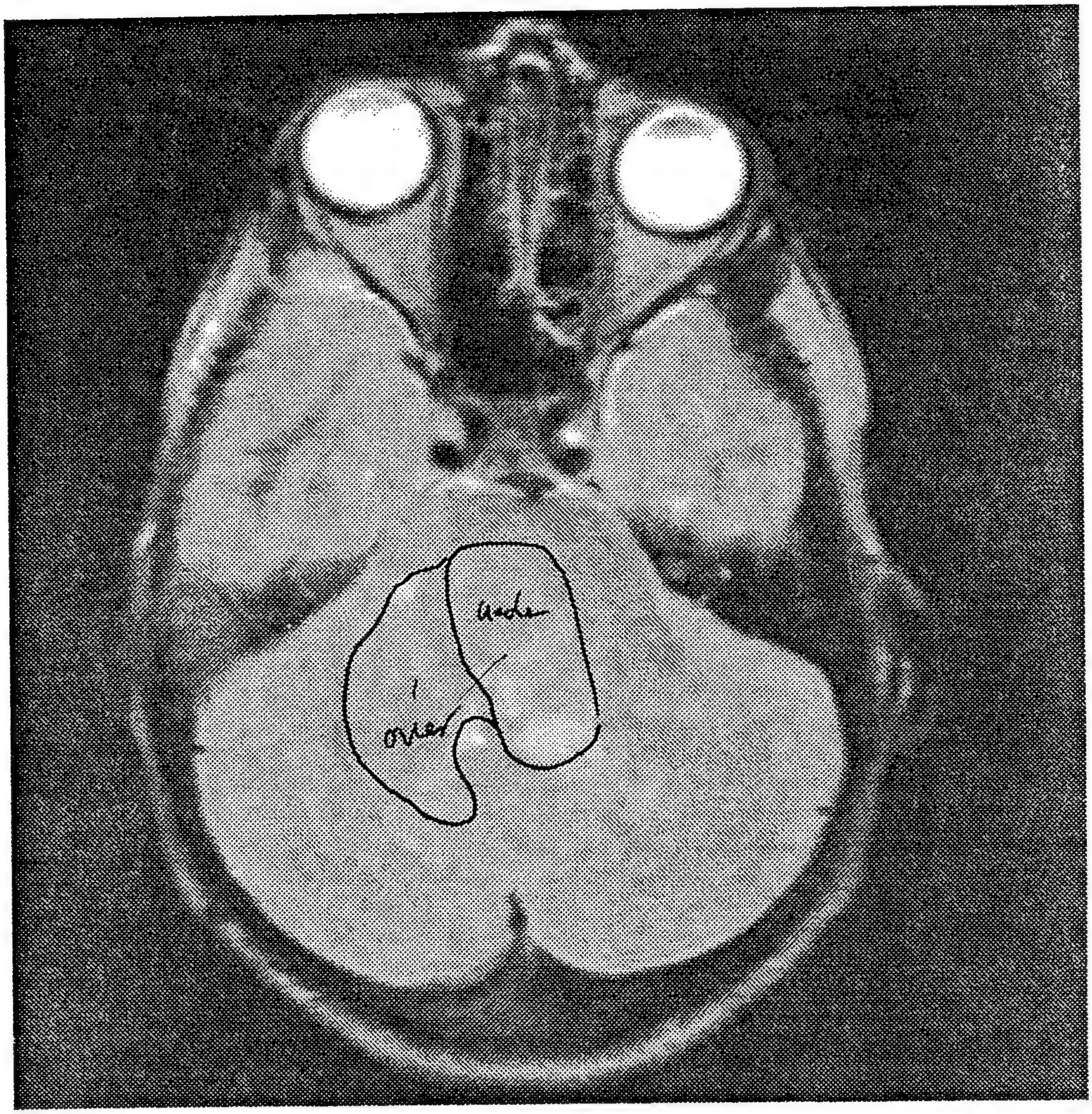
11_16_94 Processed Sep 13 1995



5_18_95 167 #13

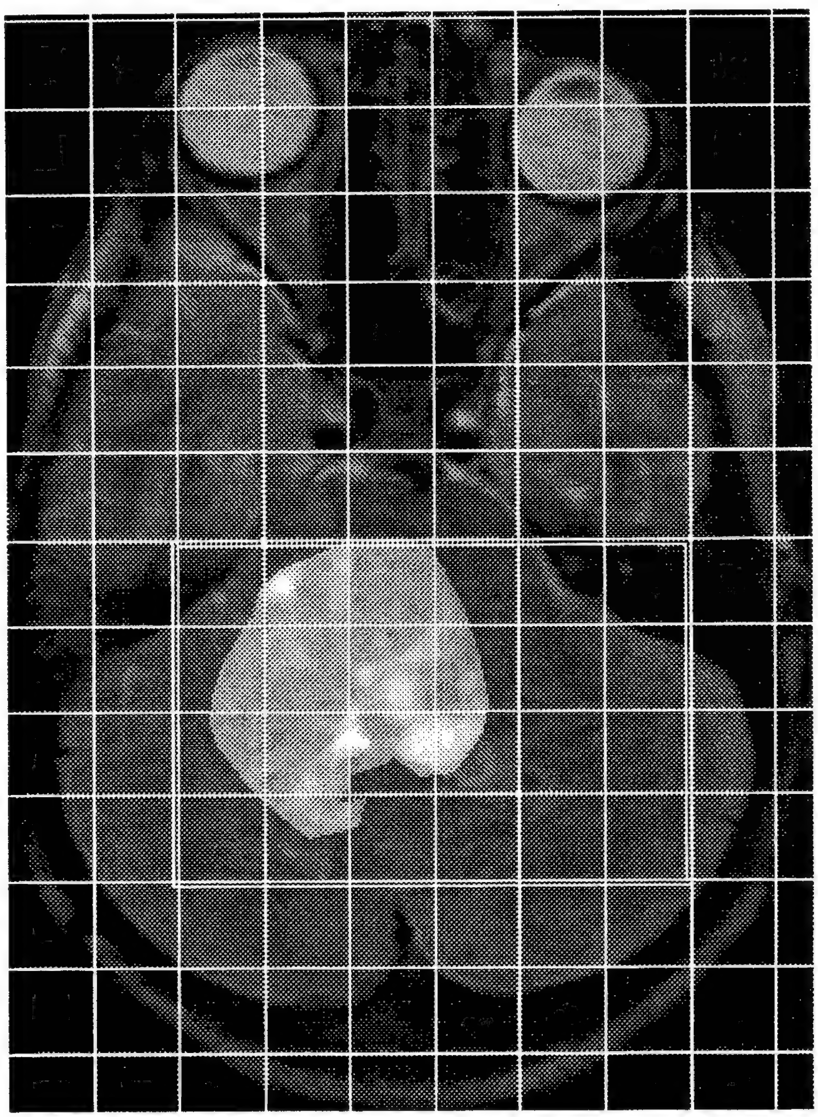
NF-1 MRS data summary									
Patient ID #		# of voxels	6x4	MR Scanner:	SP				
MR #		ROI dimension:	x = 84 mm						
Date of birth	Jan-2-86		y = 56 mm						
Date of MRS	May-18-95		z = 15 mm						
Head circumference		ROI position:	Px = 2.9 mm						
tumor location			Py = -22.2 mm						
control location			Pz = 10.8 mm						
Date of MRS processing	Sep-13-95	voxel shift:	DPx = 2 mm						
			DPy = -2 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	P(75-100%)		N	4.93	1.56	3.54	0.12	1.43	4.85
1, 3 (3)	Y		N	7.28	2.58	5.08	2.74	7.18	6.15
1, 4 (4)	P(0-25%)		N	3.6	2.15	4.48	3.18	5.67	2.47
1, 5 (5)	N		~~N~~ P (25-50%)	0.87	1.28	2.65	1.47	1.44	1.32
2, 2 (8)	Y		N	5.35	1.95	5.53	0.54	3.7	3.77
2, 3 (9)	Y		N	8.26	2.97	4.2	5.3	5.15	1.72
2, 4 (10)	P(50-75%)		N	3.55	2.65	3.62	0	8.72	3.86
2, 5 (11)	N		N	4.17	1.51	4.14	1.85	6.67	3.86
3, 2 (14)	Y		N	6.19	1.63	6.72	1.98	3.39	5.14
3, 3 (15)	P(50-75%)		N	4.74	2.27	4.26	2.27	10.2	1.62
3, 4 (16)	P(25-50%)		N	4.59	1.94	4.65	2.38	4.71	4.44
4, 2 (20)	P(25-50%)		N	4.32	0.79	3.99	3.11	0.01	0.37
4, 3 (21)	~~N~~ P(0-25%)		N	6.06	2.05	9.37	1.4	7.41	2
4, 4 (22)	N		N	5.41	1.44	8.18	1.85	6.25	5.95
4, 5 (23)	N		N	1.52	1.34	3.52	0.49	2.4	2.6

7.24.96
entered Sheila



5-18-95

5-18-95



i=1

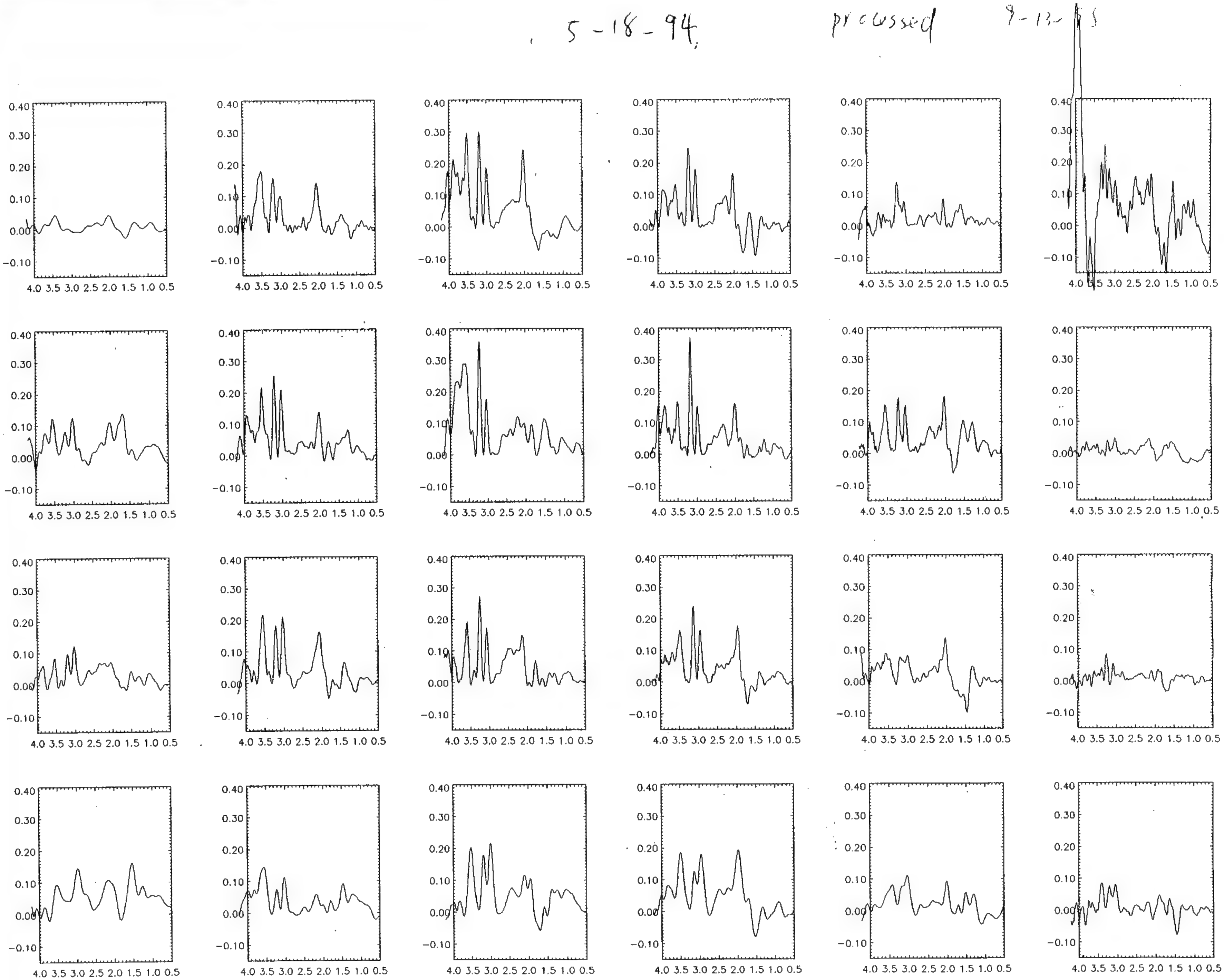
i=2

i=3

i=4

j=1 2 3 4 5 6

5-18-94 processed 9-13-95



1st Study 403

NF-1 MRS data summary									
Patient ID #		CSI array size	5x5	MR Scanner;	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	7-Feb-81		y = 70 mm						
Date of MRS	12-Jan-95		z =15 mm						
Head circumference		ROI position:	Px = -5.0 mm						
tumor location	cerebellum		Py = -12.2 mm						
control location			Pz = -6.5 mm						
Date of MRS processing	26-Aug-95	voxel shift:	DPx = -1.0 mm						
			DPy = -1.0 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
3,2 (12)	N		P (0-25%)	1.53	1	3.52	5.26	0.29	4.18
3,3 (13)	P (0-25%)		N	4.17	2.71	5.12	7.52	1.5	9
3,4 (14)	N		P (0-25%)	1.18	1.22	4.15	7.29	0	4.25
4,2 (17)	P (0-25%)		N	2.97	1.16	5.1	4.16	1.29	5.24
4,3 (18)	Y		N	3.21	2.42	5.56	1.01	1.26	1.65
4,4 (19)	N		N	1.52	2.55	6.25	6.08	10.1	5.58
5,2 (22)	N		N	3.62	1.84	5.36	1.04	0.09	6
5,3 (23)	N		N	8.73	3.84	10.1	2.9	0.13	13.7
5,4 (24)	N		N	4.91	2.21	6.47	4.48	3.4	6.84

7/24/96, entered
Sheila

$i=1$

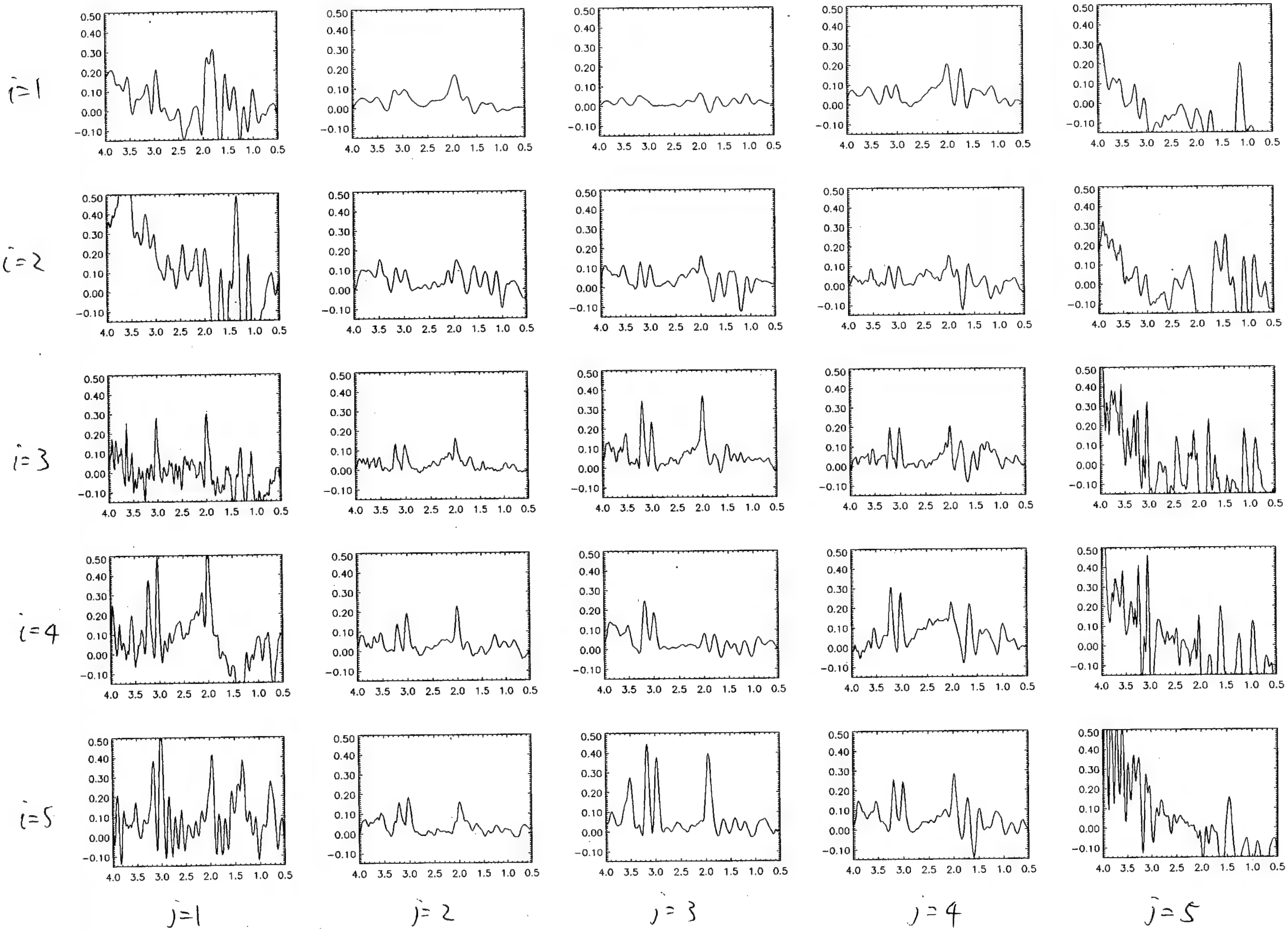
$i=2$

$i=3$

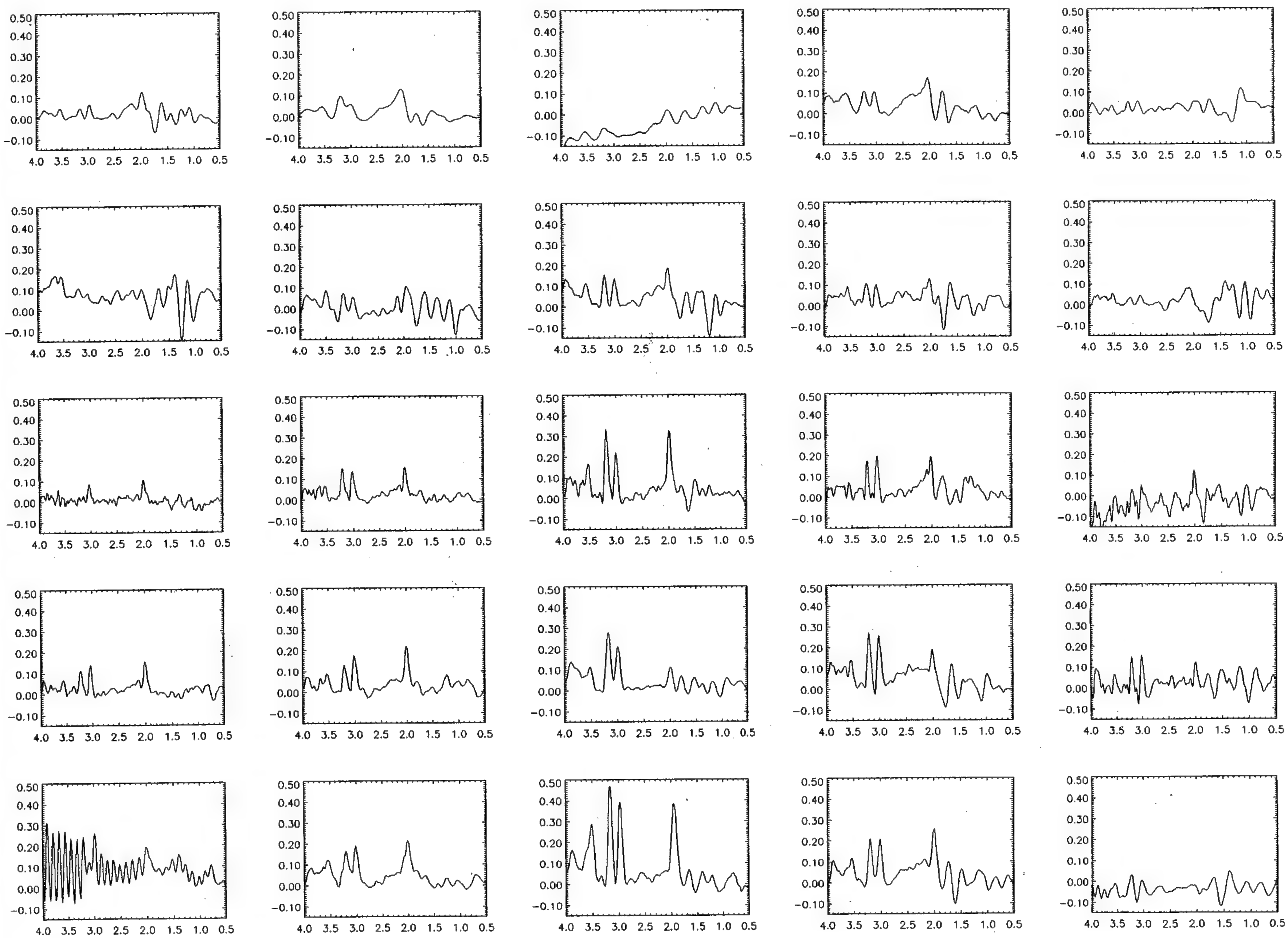
$i=4$

$i=5$

$j=1$ $j=2$ $j=3$ $j=4$ $j=5$



i=1
i=2
i=3
i=4
i=5
j=1
j=2
j=3
j=4
j=5



 2nd study ~~[illegible]~~ 403

NF-1 MRS data summary									
Patient ID #		CSI array size	5x6	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	feb-7-81		y = 84 mm						
Date of MRS	Jun-28-95		z = 12 mm						
Head circumference		ROI position:	Px = 4.7 mm						
tumor location	cerebellum		Py = -0.2 mm						
control location			Pz = 11.6 mm						
Date of MRS processing	Aug-1-95	voxel shift:	DPx = -2 mm						
			DPy = 0.0 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
4, 2 (17)	N		P (0-25%)	1.49	1.03	2.74	8.25	0	8
4, 3 (18)	P (0-25%)		N	0.74	1.09	2.83	7.98	0	7.48
4, 4 (19)	N		P (0-25%)	5.42	1.02	2.65	0.87	0.92	3.61
5, 2 (22)	P (0-25%)		N	0.76	1.38	5.13	0	15.2	6.66
5, 3 (23)	Y		N	1.2	1.95	1.53	1.34	4.07	1.55
5, 4 (24)	N		N	2.45	1.81	5.06	5.82	5.88	3.59
6, 2 (27)	N		N	1.2	1.44	5.39	11.9	0.3	7
6, 4 (29)	N		N	0	1.29	3.07	5.12	7.17	2.49

7.28.96
SNVentered

i=1

2

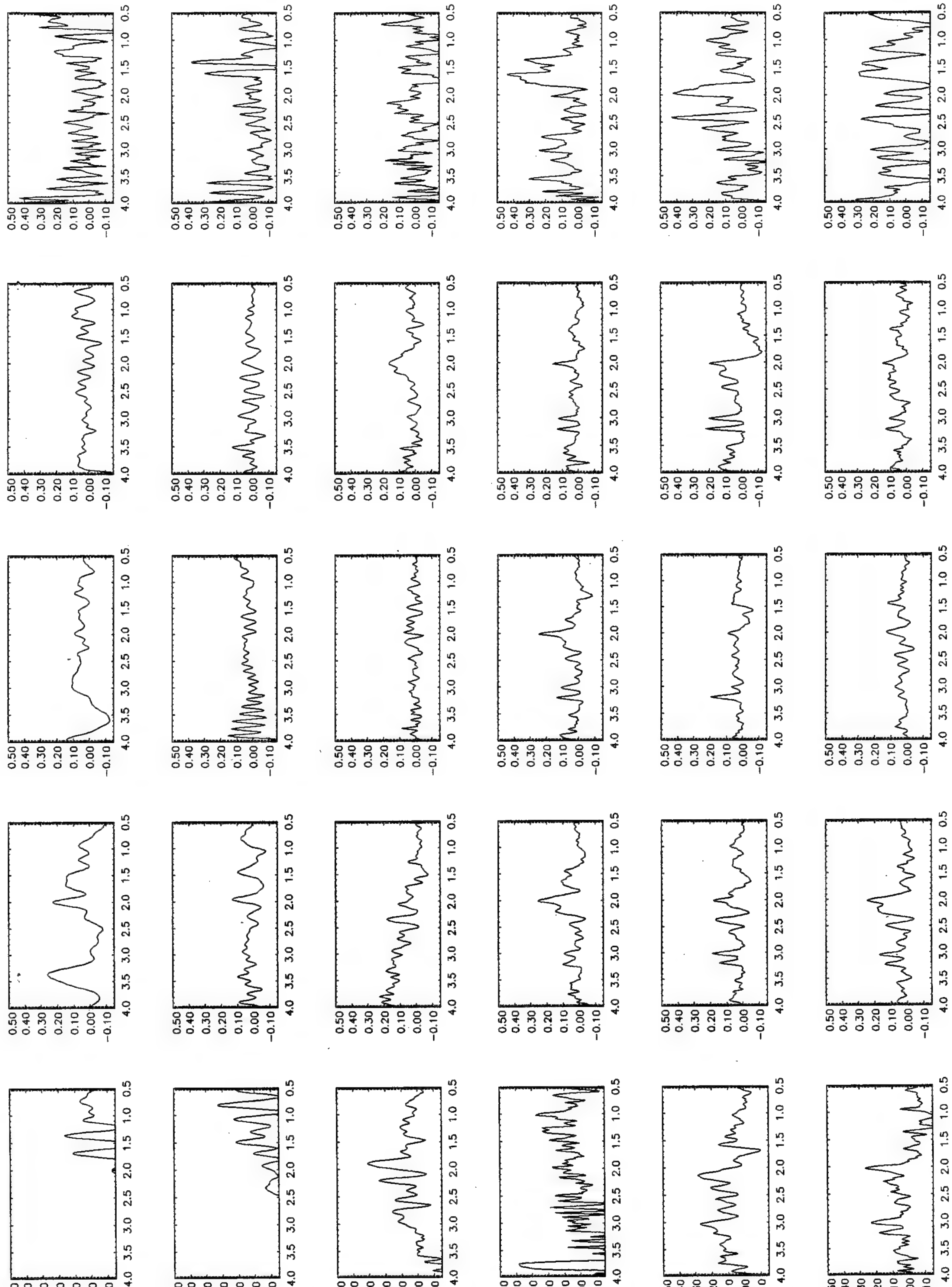
3

4

5

6

j=1, 2, 3, 4, 5.



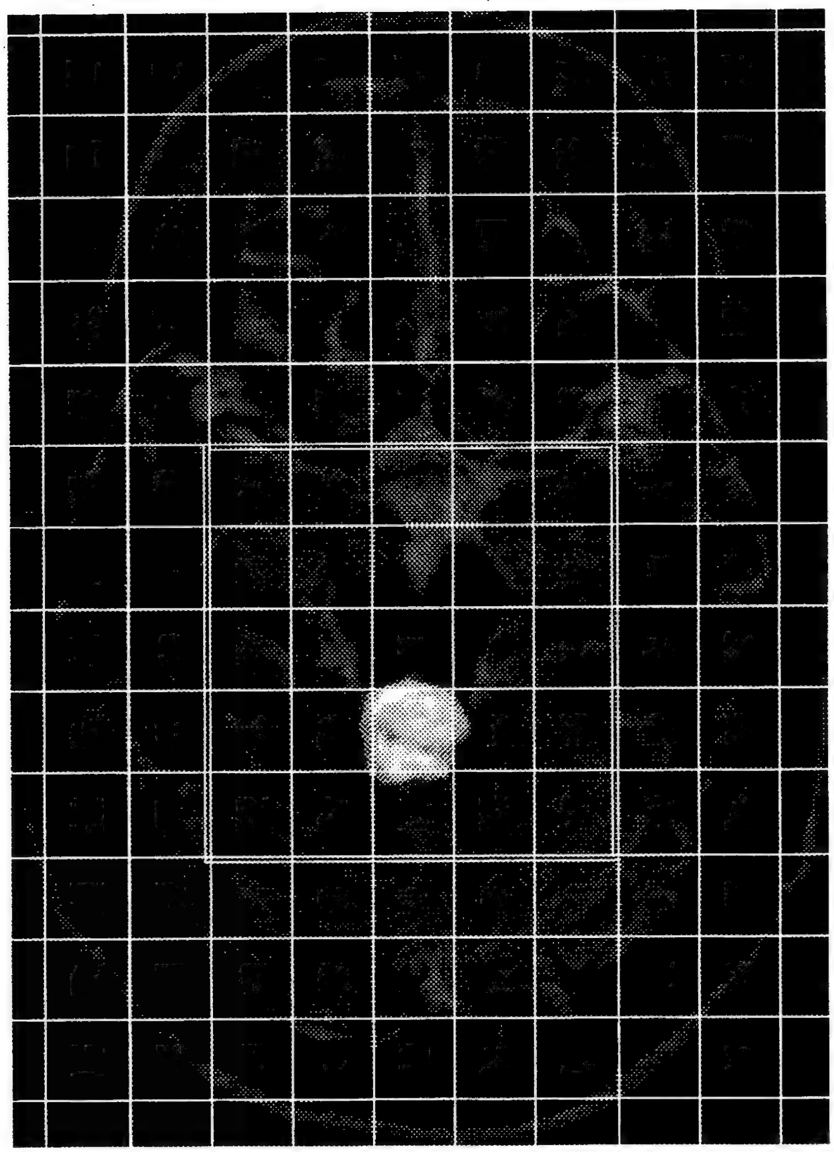
pt. 403
study 3?

NF-1 MRS data summary									
Patient ID #		CSI array size	5x5	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	feb-7-81		y = 70 mm						
Date of MRS	Jan-25-96		z = 15 mm						
Head circumference		ROI position:	Px = 0.5 mm						
tumor location	cerebellum		Py = -11.3 mm						
control location			Pz = -1.5 mm						
Date of MRS processing	Jan-25-96	voxel shift:	DPx = -4 mm						
			DPy = 0.0 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
3, 2 (12)	N		P (0-25%)	1.71475	0.797143	4.05527	3.80785	0	6.88277
3, 3 (13)	N		N	2.77696	1.85802	5.72652	4.39252	9.81366	6.58978
3, 4 (14)	N		P (0-25%)	2.7795	0.764311	2.6097	0.944774	7.99953	6.3844
4, 2 (17)	N		N	3.94735	1.64164	8.06886	4.35477	0.787564	5.90925
4, 3 (18)	Y		N	2.54996	3.32667	4.36608	4.85706	0	3.46205
4, 4 (19)	N		N	1.97294	1.4229	5.31925	6.37233	3.5967	5.04824
5, 2 (22)	N		N	4.78933	1.87646	7.65878	3.16346	6.73681	5.24432
5, 3 (23)	N		N	5.09501	2.64363	7.08992	4.91348	5.00435	6.59317
5, 4 (24)	N		N	3.04717	1.24459	6.94212	2.72658	5.13091	7.70133

[illegible] 7 28 96 [illegible]

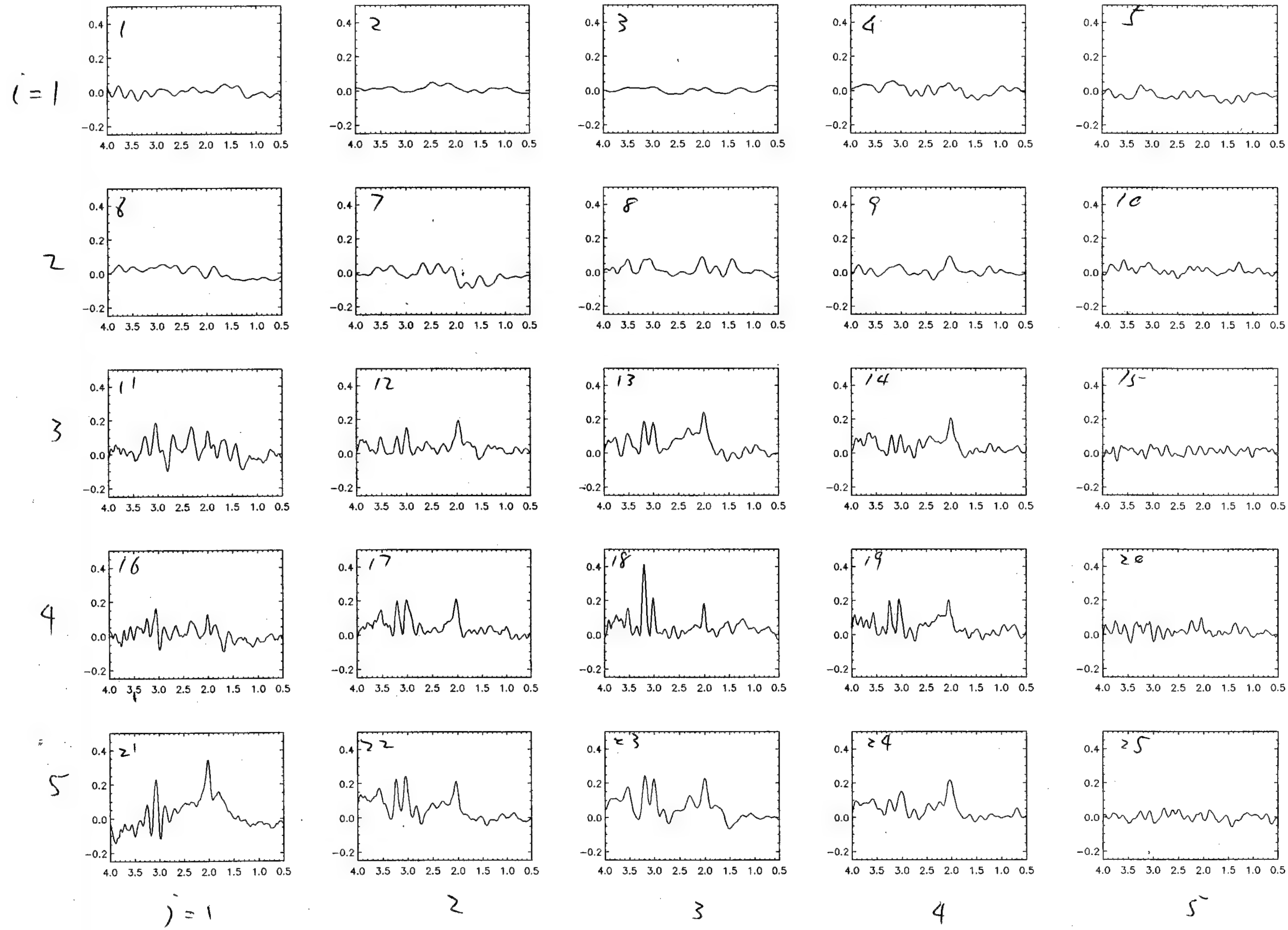
1-25-96 shift $\begin{cases} \Delta x = -4 \\ \Delta y = 0 \end{cases}$

processed 1-25-96



1-25-96

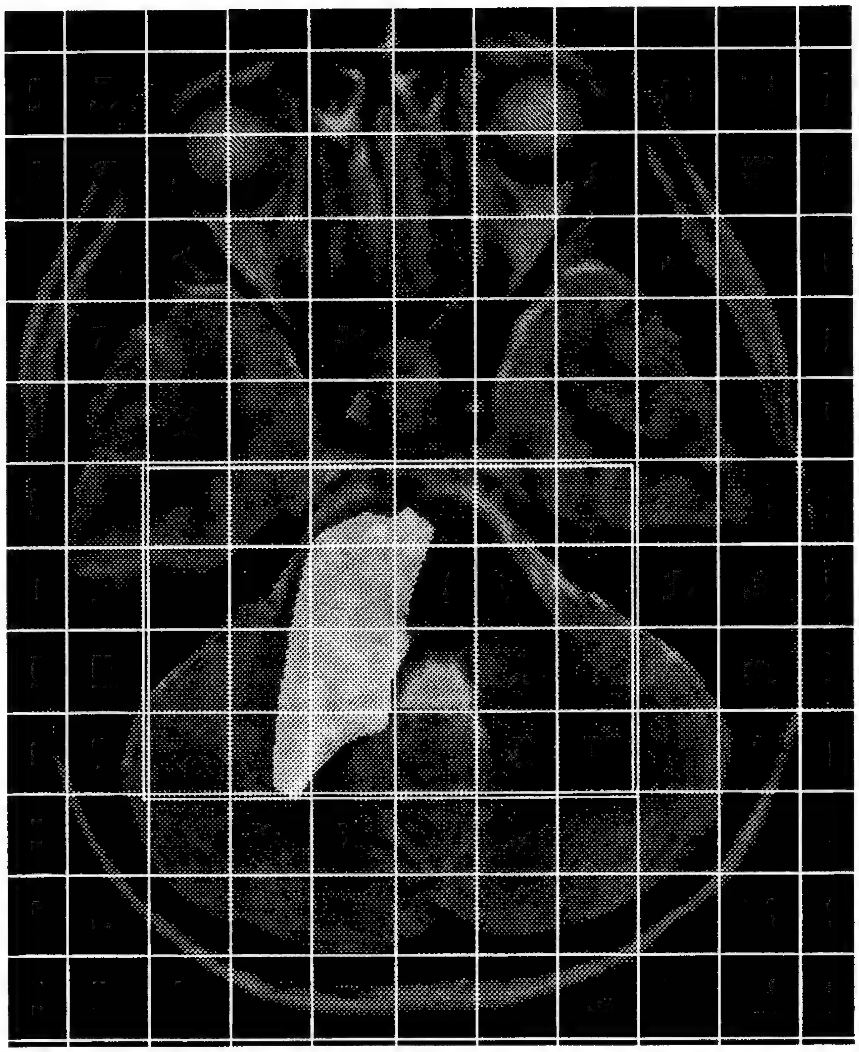
$\delta x = -4$
$\delta y = 0.$



'2_1_26_95 #404 1

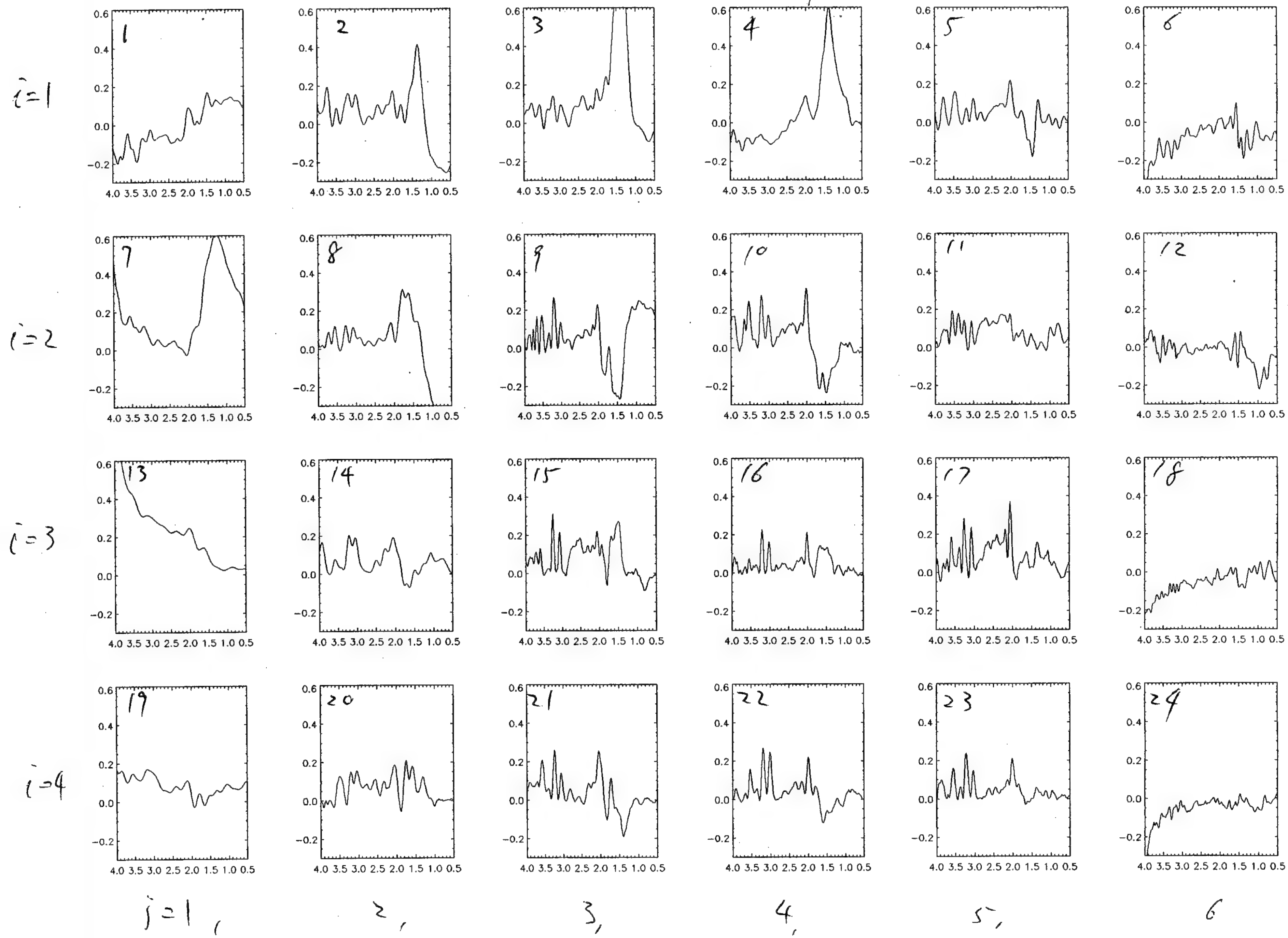
NF-1 MRS data summary									
Patient ID #		CSI array size	6x4	MR Scanner:	SP				
MR #		ROI dimension:	x = 84 mm						
Date of birth	Jan-31-87		y = 56 mm						
Date of MRS	Jan-26-95		z = 15 mm						
Head circumference	55.7 cm	ROI position:	Px = 15.5 mm						
tumor location	cerebellum		Py = -22.1 mm						
control location			Pz = 41.8 mm						
Date of MRS processing	Aug -1-95	voxel shift:	DPx = 0mm	use	re1097_a.dat				
			DPy = 5 mm						
		Image shift	x = 14.						
Peak area									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
2, 3 (9)	Y		N	2.86	2.39	3.62	1.62	7.89	5.03
2, 4 (10)	P(25-50%)		N	7.92	2.63	5.63	1.42	12.3	6.79
2, 5 (11)	N		P(0-25%)	1.54	1.72	3	7.77	8.53	5.25
3, 2 (14)	P(50-75%)		N	2.5	2.23	10.8	6.22	4.57	7.94
3, 3 (15)	Y		N	2.94	2.08	4.7	0.98	15.1	4.4
3, 4 (16)	N		P(50-75%)	1	1.61	3.66	5.68	0	4.05
3, 5 (17)	N		N	2.48	2	4.67	6.31	14.2	5.58
4, 3 (21)	P(50-75%)		N	5.1	2.23	3.6	8.74	0	9.99
4, 4 (22)	P(50-75%)		P(0-25%)	3.33	2.36	7.29	2.67	5.74	4.72
4, 5 (23)	N		N	3.24	2.27	3.61	2.97	2.5	8.68

+ 2/9/96
SWJ



1-26-95

shift x=0, y=+5 processing 8-1-95



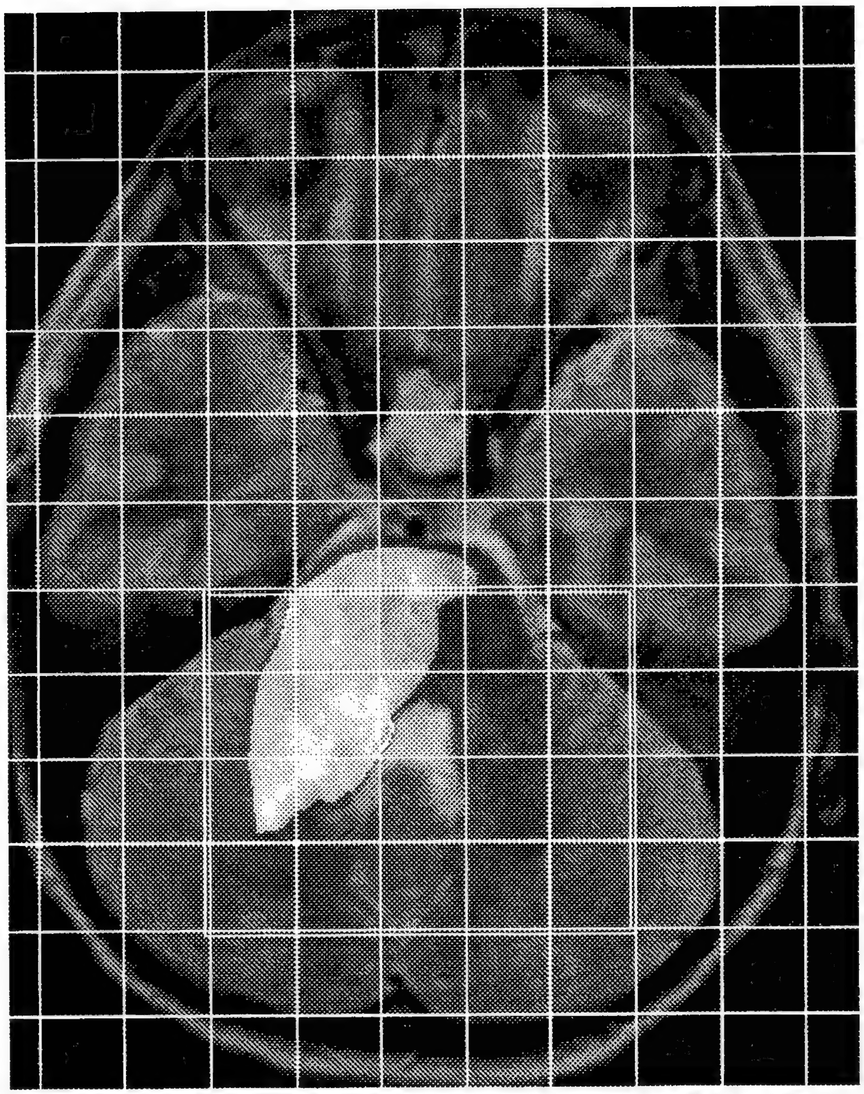
_8_22_95 #404-#2

NF-1 MRS data summary									
Patient ID #		CSI array size	5x4	MR Scanner:	SP				
MR #		ROI dimension:	x = 84 mm						
Date of birth	Jan-31-87		y = 56 mm						
Date of MRS	Aug-22-95		z = 12 mm						
Head circumference	55.7 cm	ROI position:	Px = 1.3 mm						
tumor location	cerebellum		Py = -33.2 mm						
control location			Pz = 20.3 mm						
Date of MRS processing	Sep-15-95	voxel shift:	DPx = 0 mm						
			DPy = 0 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	Y		N	3.42	1.93	3.88	5.62	0.51	5.54
1, 3 (3)	P(50-75%)		N	2.42	1.2	3.86	9.38	2.83	7.49
1, 4 (4)	N		P(0-25%)	1.99	1.22	2.63	0.92	2.93	3.39
2, 2 (7)	Y		N	5.36	2.39	5.74	0.48	7.38	4.77
2, 3 (8)	P(0-25%)		P(50-75%)	3.51	1.11	4.24	0	6.61	2.81
2, 4 (9)	N		N	2.73	1.26	5.42	0.53	7.87	4.07
3, 2 (12)	P(25-50%)		N	2.36	1.16	2.43	6.06	2	6.78
3, 3 (13)	N		P(0-25%)	2.41	1.58	5.88	1.78	0.69	6.26
3, 4 (14)	N		N	2.73	1.16	3.54	3.59	0	4.8
4, 2 (17)	N		N	2.46	0.8	5.29	2.5	2.27	4.37

entered SMC 7.29.96

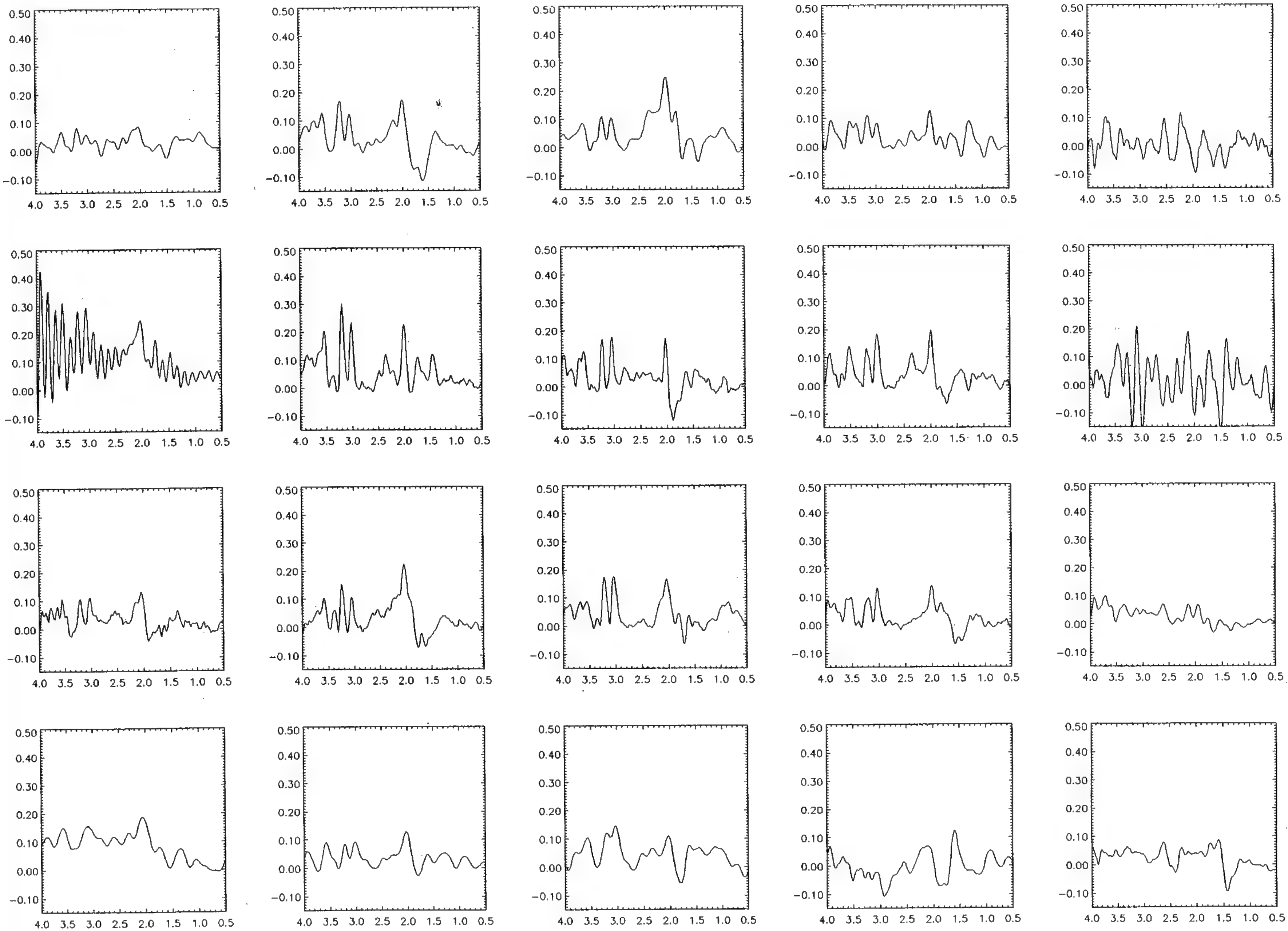
8-22-95

i=1
2
3
4



j=1, 2, 3, 4, 5.

8-22-95



_4_25_95

405 #1

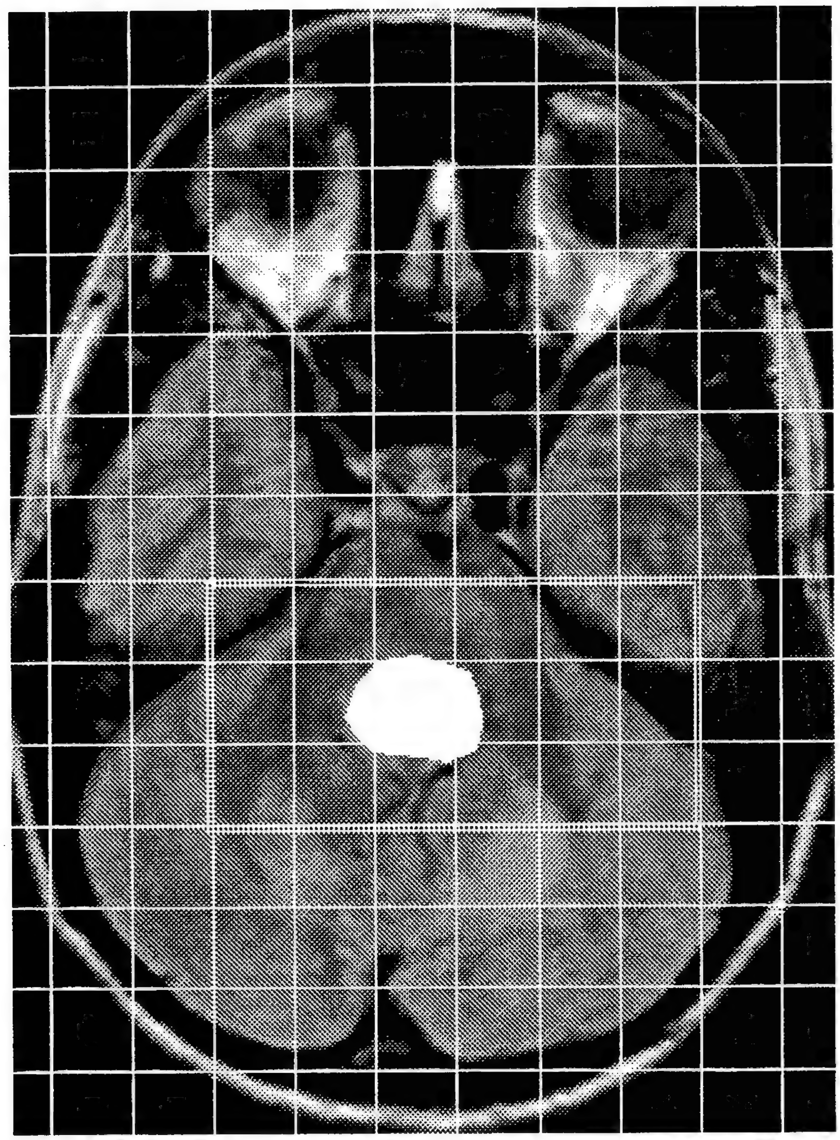
Entered 9-13-95

NF-1 MRS data summary									
Patient ID #		# of voxels	6x3	MR Scanner:	SP				
MR #		ROI dimension:	x = 84 mm						
Date of birth	Nov-19-83		y = 42 mm						
Date of MRS	Apr-25-95		z = 15 mm						
Head circumference		ROI position:	Px = -3.7 mm						
tumor location	brainstem		Py = -30.0 mm						
control location			Pz = 23.8 mm						
Date of MRS processing	Sep-13-95	voxel shift:	DPx = 5 mm						
			DPy = 5 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
2, 2 (8)	P(0-25%)		N	2.85	1.48	4.19	1.63	0.45	3.23
2, 3 (9)	Y		N	3.02	1.8	3.8	0	9.81	6.23
2, 4 (10)	P(0-25%)		N	5.18	1.92	5.95	0	20.5	8.82
3, 2 (14)	N		N	3.14	2.66	8.38	0	10.4	7.26
3, 3 (15)	P(0-25%)		N	2.35	2.39	4.69	13.4	0	2
3, 4 (16)	P(0-25%)		N	5.04	3.85	4.11	14.9	3.5	2.76
~~3, 5 (17)~~	~~N~~		~~N~~	~~1.42~~	~~1.58~~	~~4.03~~	~~1.09~~	~~3.99~~	~~2.61~~

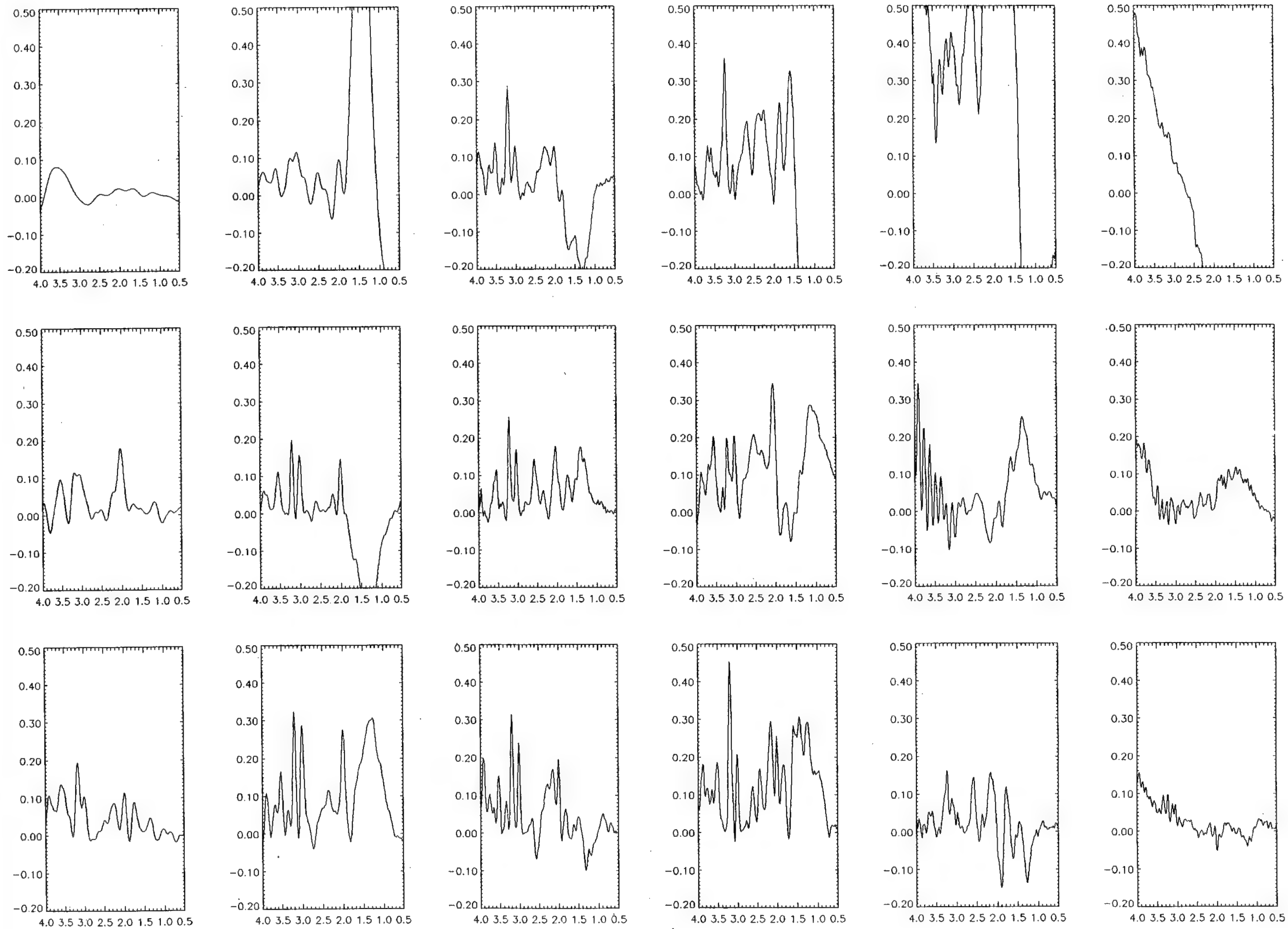
Ver'd SWV 7-15-96

Apr-25-95

Processed Sep 13, 1995



4-25-95 processed Sep 13, 1995



i=1

i=2

i=3

j=1 j=2 j=3 j=4 j=5 j=6

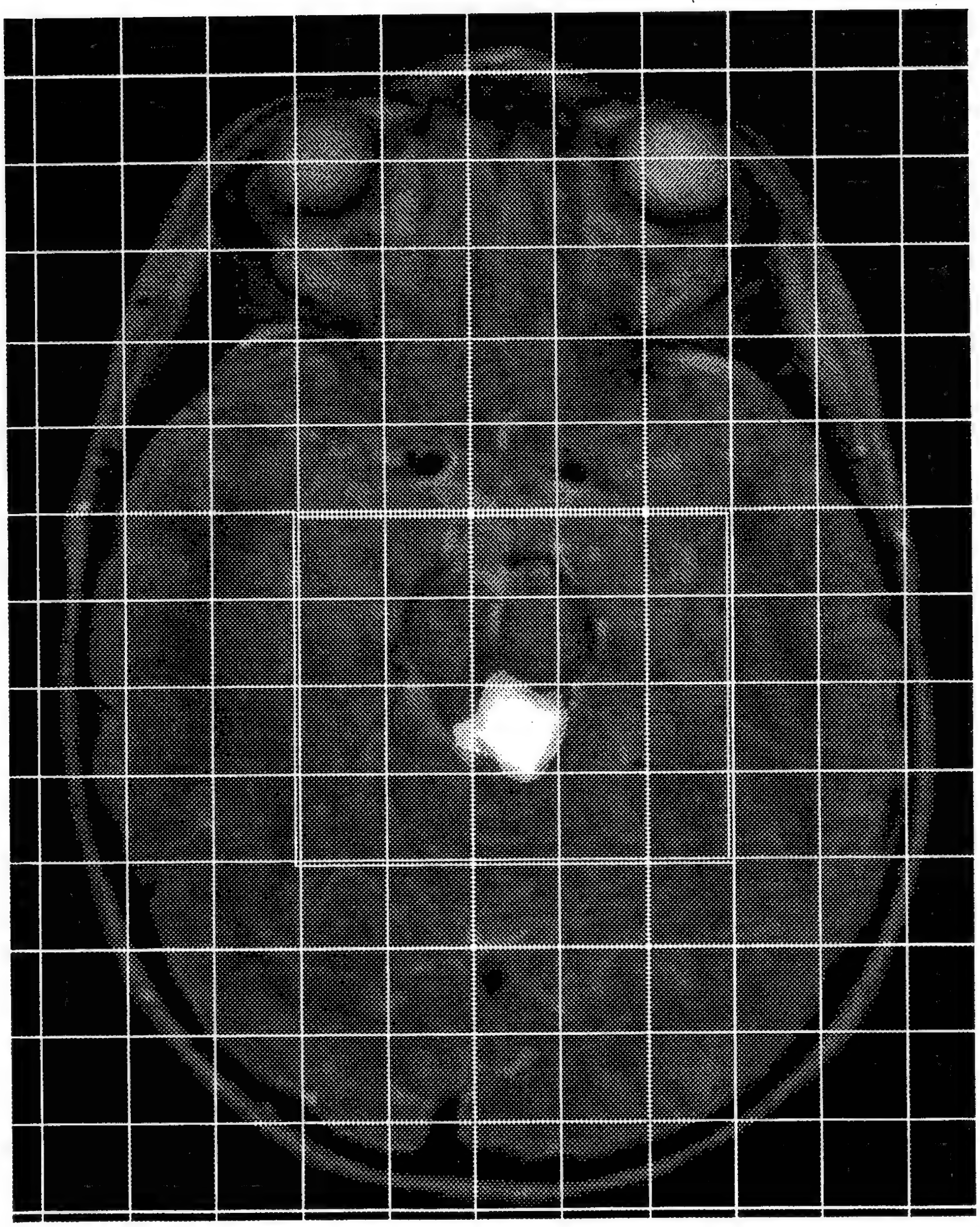
#406
#2.

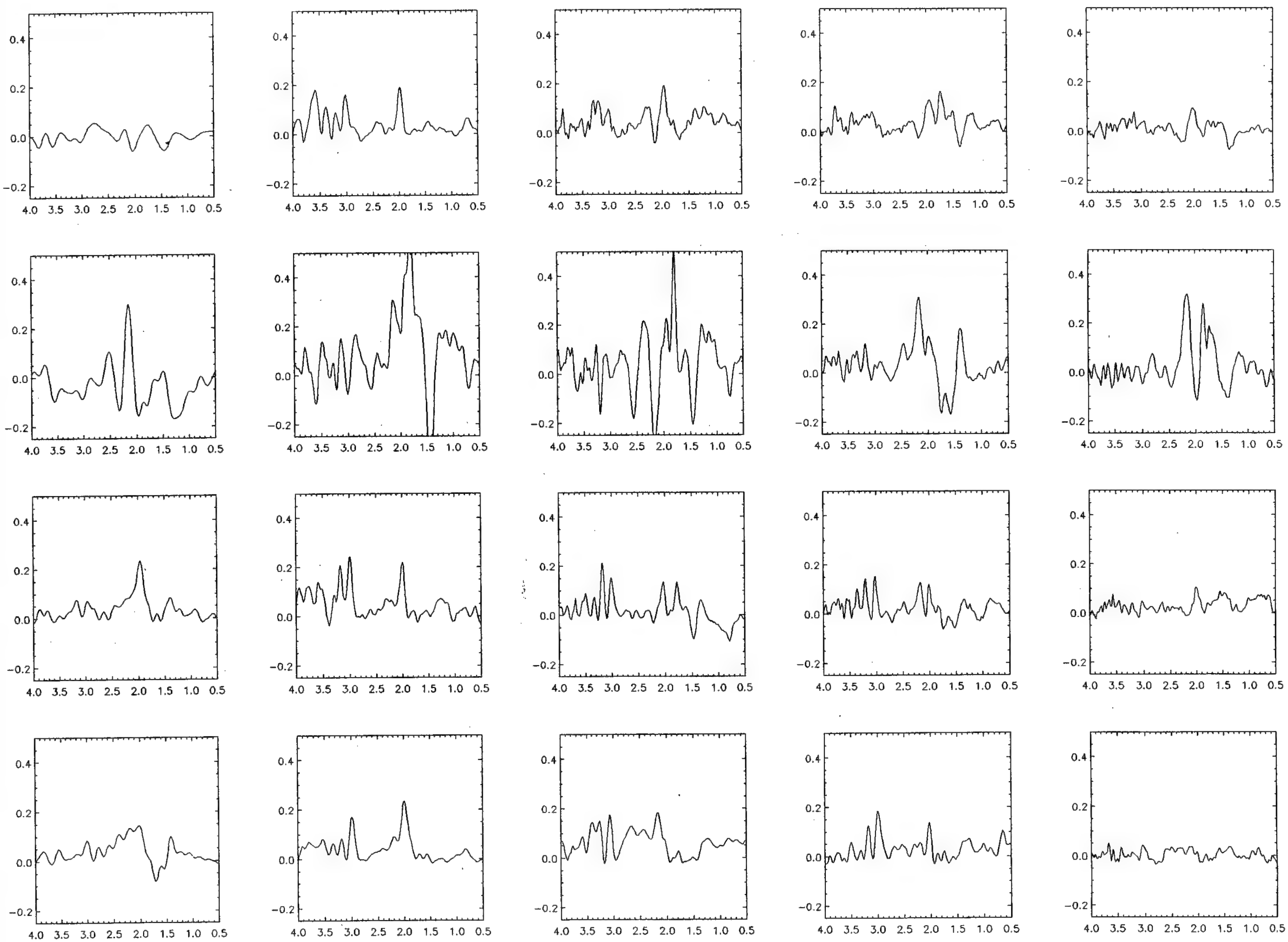
entered Shula 7 1996

NF-1 MRS data summary											
Patient ID #		CSI array size	5x4	MR Scanner:	SP						
MR #		ROI dimension:	x = 70 mm								
Date of birth	Mar-25-90		y = 56 mm								
Date of MRS	Apr-19-96		z = 12 mm								
Head circumference		ROI position:	Px = 0.0 mm								
tumor location			Py = -6.8 mm								
control location			Pz = 7.9 mm								
Date of MRS processing	Apr-20-96	voxel shift:	DPx = 0.0 mm								
			DPy = 0 mm								
metabolite levels											
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	NAA	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)								
1, 2 (2)	N		P(0-25%)	3.53555	0.89943	6.31793	0	6.6497	6.26253	2.341457	2.32092548
1, 3 (3)	N		P(0-25%)	1.71755	1.40842	3.07561	1.05646	6.02	5.89553	0.72791024	1.39530585
3, 2 (12)	P(0-25%)		P(0-25%)	2.96065	2.3438	7.50567	5.40172	1.11165	6.07197	1.06745029	0.86355064
3, 3 (13)	Y	tectum	P(0-25%)	1.40327	1.90855	4.88785	0	1.61163	4.40377	0.853676	0.76913014
3, 4 (14)	N		N	1.54654	1.28302	3.63274	6.58612	0	1.38155	0.94379927	0.35893179
4, 2 (17)	N		N	2.02061	0.883061	5.92803	4.60342	2.77793	10.4313	2.23768233	3.93755358
4, 3 (18)	N		N	1.86062	1.44379	5.48982	0.146964	12.4935	4.97694	1.26745579	1.14904522
4, 4 (19)	N		N	1.25345	1.1857	7.14276	2.68577	1.06834	2.81554	2.00802901	0.79152681

4-19-96

shift image $\begin{cases} imx = -1 \\ imy = 8 \end{cases}$ shift voxel $\begin{cases} \Delta x = 0 \\ \Delta y = 0 \end{cases}$




i = 1
i = 2
i = 3
i = 4
j = 1
j = 2
j = 3
j = 4
j = 5
0.4
0.2
0.0
−0.2
4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5

6_15_94 #501- #1

NF-1 MRS data summary									
Patient ID #		CSI array size	5x4	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	Nov-27-88		y = 56 mm						
Date of MRS	Jun-15-94		z = 15 mm						
Head circumference		ROI position:	Px = -3 mm						
tumor location	optoc chiasm		Py = -22 mm						
control location			Pz = 26.3 mm						
Date of MRS processing	Sep-15-95	voxel shift:	DPx = -3 mm						
			DPy = 0 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	N		P (0-25%)	6.7120716	2.09702592	3.6539088	2.44653024	14.5120103	5.54440944
1, 3 (3)	N		P (50-75%)	2.88341064	0.66008657	2.43858696	4.26554136	0	4.0510728
1, 4 (4)	P(0-25%)		P (25-50%)	2.36709744	1.22326512	6.5929224	11.4383232	0	5.4014304
2, 2 (7)	N		N	4.89306048	2.24794824	3.22497168	7.2283848	6.30956972	8.1815784
2, 3 (8)	P(0-25%)		P (50-75%)	3.375894	0.68153342	5.07575592	9.531936	27.1311498	5.0836992
2, 4 (9)	Y		P (0-25%)	4.49589648	1.47745008	8.2610112	2.1446856	5.67861274	3.7333416
3, 2 (12)	N		P (0-25%)	4.30525776	2.6212824	8.6581752	4.8454008	18.2977522	6.1957584
3, 3 (13)	N		P (0-25%)	3.51887304	1.60454256	7.2283848	5.0042664	13.2500964	3.8127744
3, 4 (14)	P(0-25%)		P (0-25%)	3.35206416	2.09702592	5.39348712	6.2751912	0	5.8780272
4, 2 (17)	N		N	3.91603704	1.42184712	11.120592	4.9248336	6.30956972	7.7844144
4, 3 (18)	N		N	5.64767208	2.52596304	17.475216	5.0836992	0	6.8312208

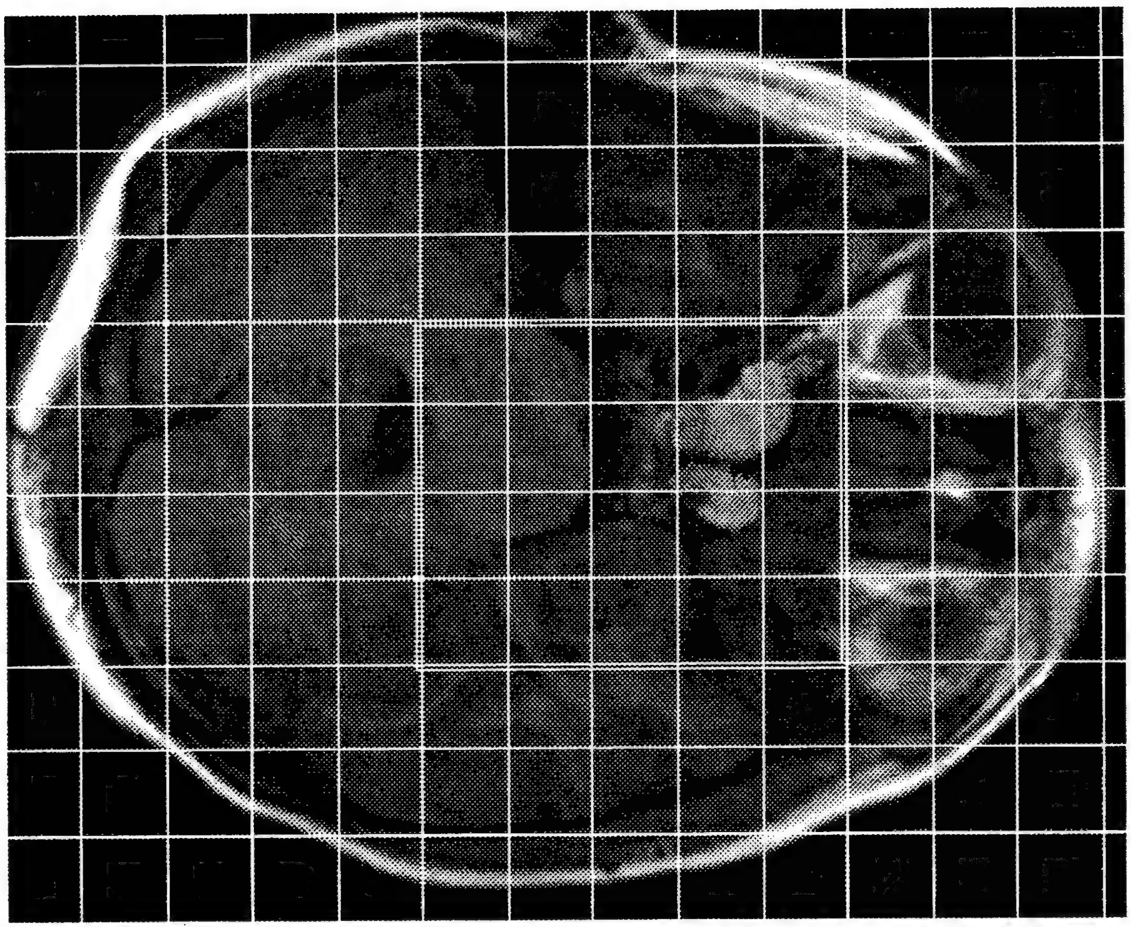
ROI #1
HYPOTHA.

7.15.96

6-15-94 9-16-95

shift = $\begin{cases} 2 \\ -4 \end{cases}$

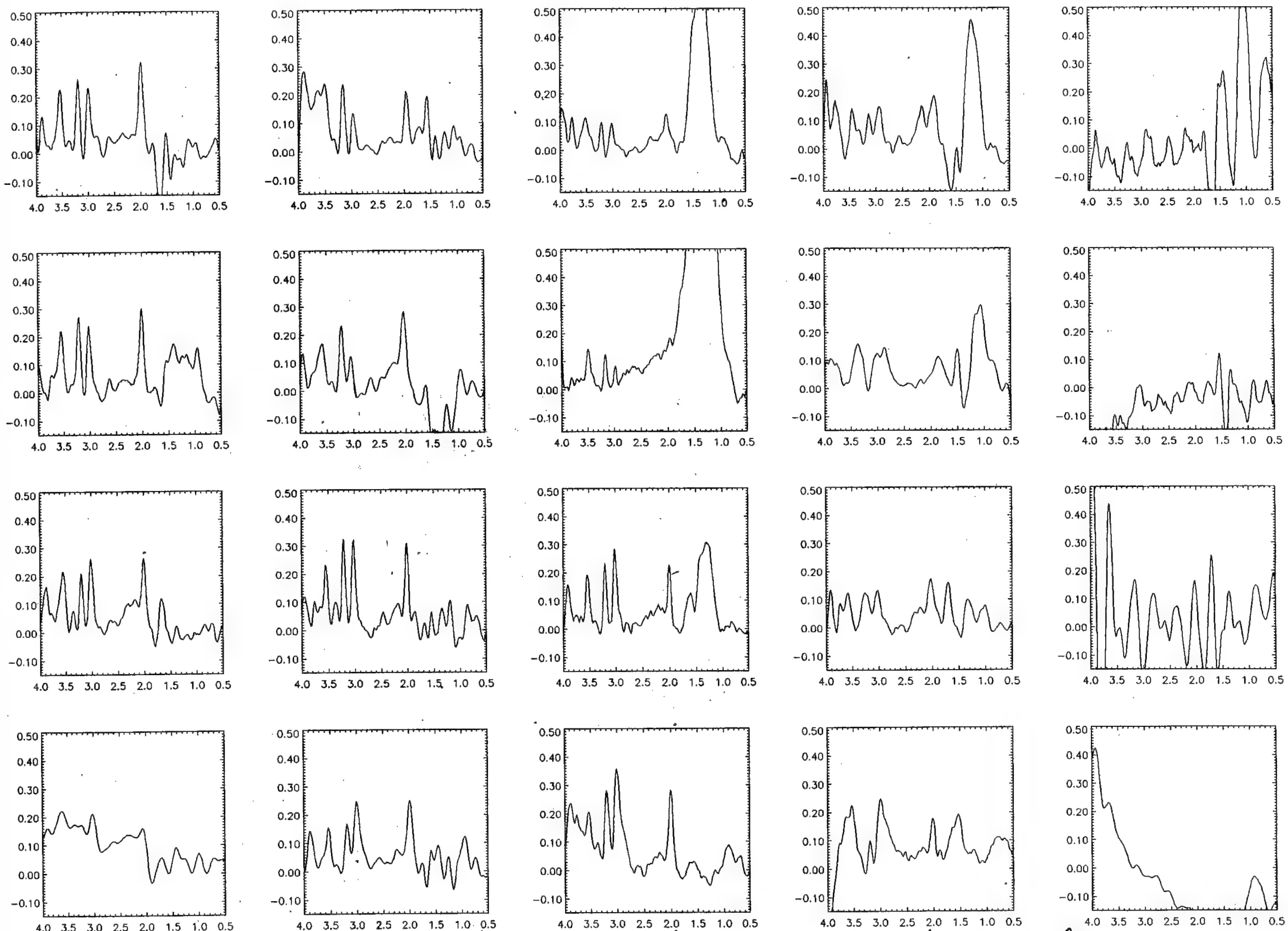
i=1
2
3
4



j=1 2 3 4 5

6-15-94
9-16-95

shift = $\begin{cases} 2 \\ -4 \end{cases}$



Caul = 32 (1.5-2.0)
Cr = 3 (4.0-6.0)
NAA = [illegible] (4.0-6.0)

Myoinositol = 3.5 (2.0-3.0)
fit value +18 dB

Low grade astrocytoma

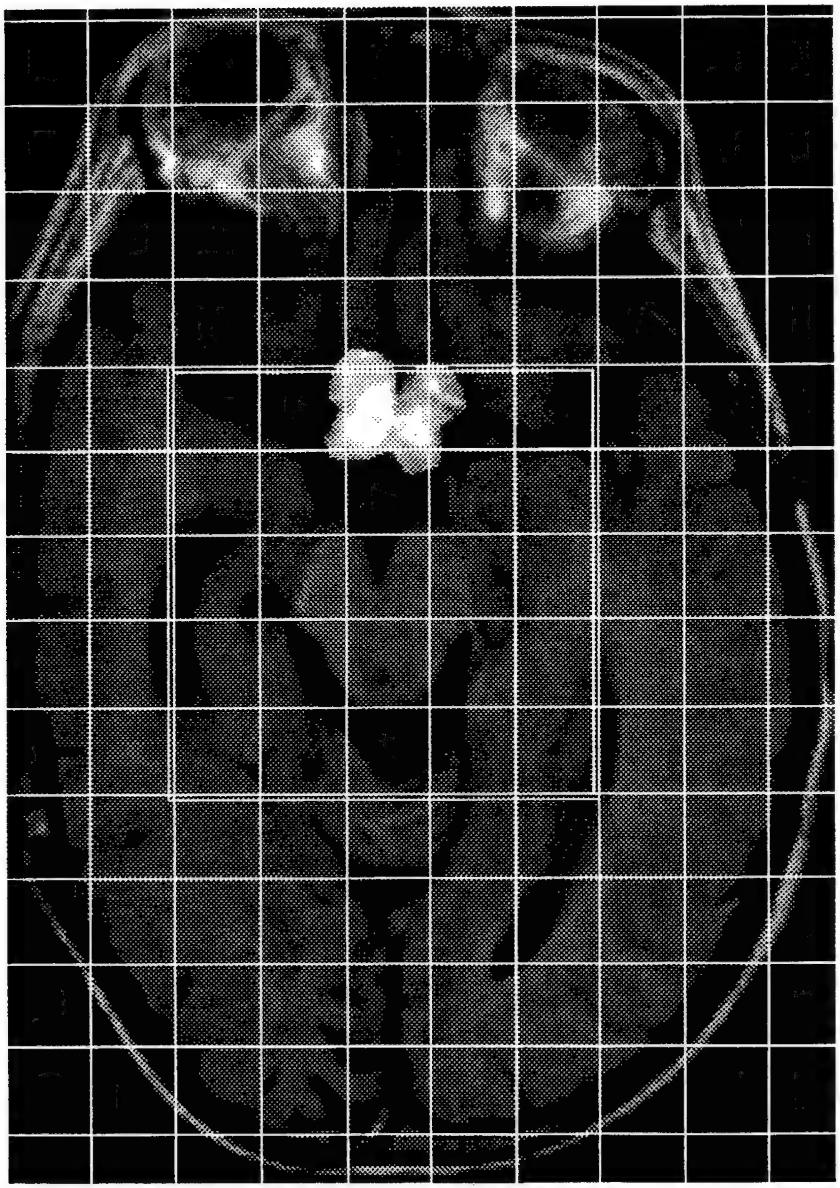
Cho ______

NAA ______

_5_18_95 2nd study 502

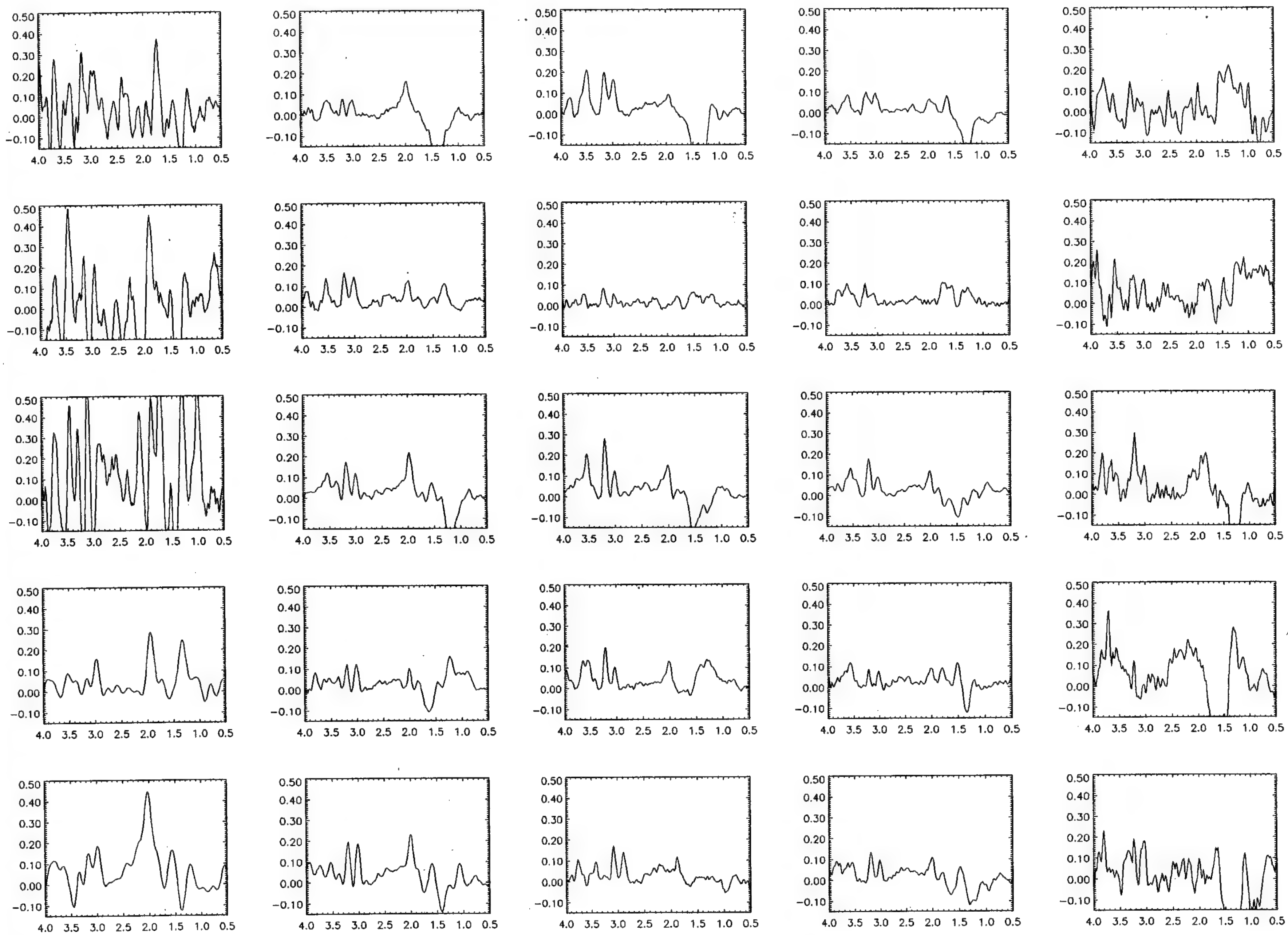
NF-1 MRS data summary									
Patient ID #		CSI array size	5x5	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	aug-6-88		y = 70 mm						
Date of MRS	may-18-95		z = 12 mm						
Head circumference		ROI position:	Px = -3.0 mm						
tumor location	optical chiasm		Py = -4.7 mm						
control location			Pz = 29.8 mm						
Date of MRS processing	Jul-31-95	voxel shift:	DPx = 1 mm						
			DPy = -2 mm						
Metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	P(0-25%)		P (75-100%)	1.59	0.53	2.29	4.18	0	5.39
1, 3 (3)	Y (75-100%)		P (0-25%)	6.76	1.99	5.61	2	3.66	2.44
1, 4 (4)	P (0-25%)		P (25-50%)	2.78	1.14	3.38	0	1.93	2.42
2, 2 (7)	P (0-25%)		P (0-25%)	3.23	1.45	5.04	0.99	4.28	3.45
2, 3 (8)	P (0-25%)		P (75-100%)	0.9	0.65	1.11	2.8	0	0
2, 4 (9)	P (0-25%)		P (0-25%)	7.34	0.7	1.92	1.87	0.59	0
3, 2 (12)	N		N	4.89	1.6	2.92	3.65	2.09	7.07
3, 3 (13)	N		P (0-25%)	5.12	2.34	3.07	0.46	5.26	4.42
3, 4 (14)	N		N	5.43	1.6	3.02	5.96	2.58	2.3
4, 2 (17)	N		P (25%)	1.84	0.92	3.11	1.76	2.87	1.43
4, 3 (18)	N		N	7.1	1.61	2.46	1.53	1.65	3.89
4, 4 (19)	N		P (25-50%)	4.15	0.54	1.74	0	3.64	2.83
5, 2 (22)	N		N	2.2	1.67	4.92	2.89	5.09	7.27
5, 3 (23)	N		P (75%)	2.07	1.39	3.74	2.02	5.63	1.61
5, 4 (24)	N		P (0-25%)	2.45	1.1	2.19	0.14	4.63	2.48

entered SMW 7/29/96



5-16-95

5-18-95

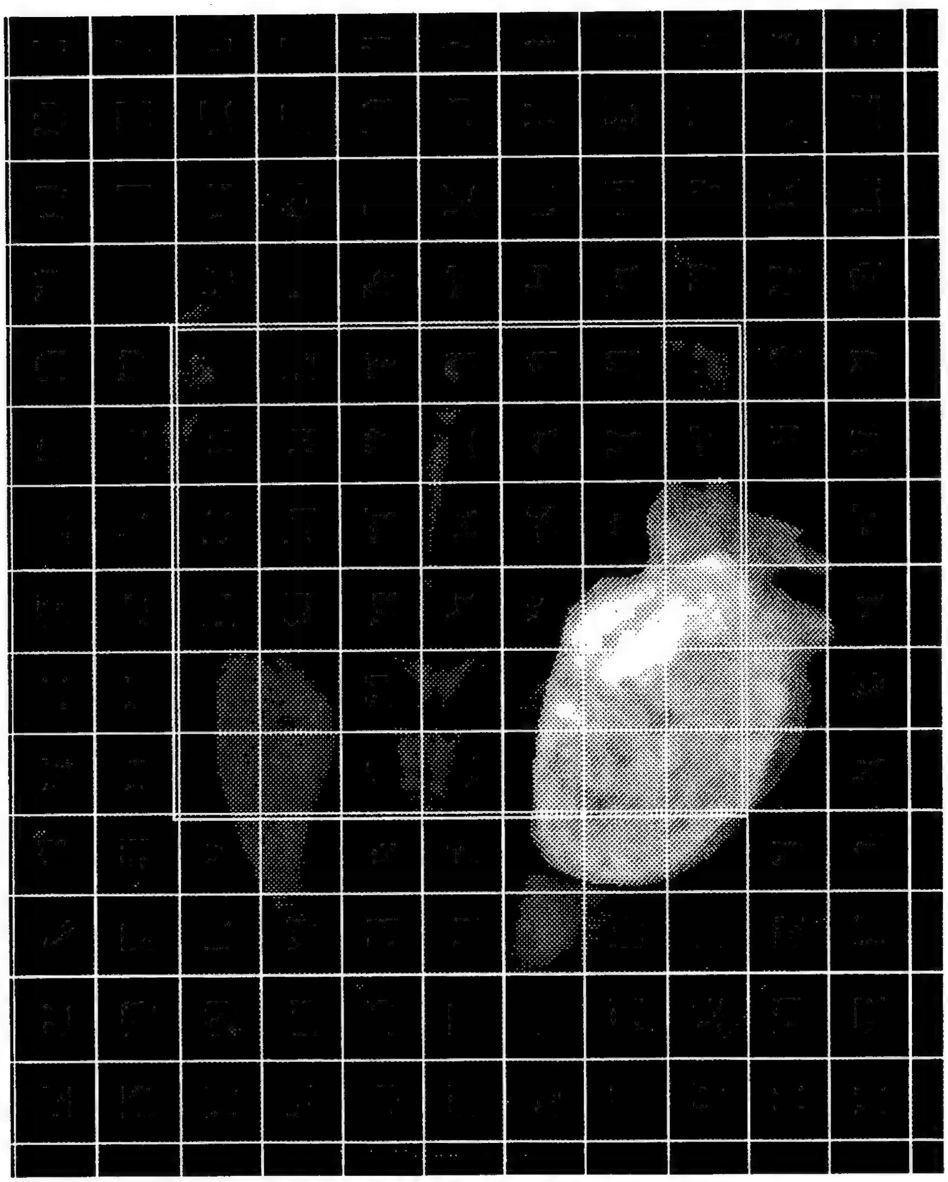


 1st Study 503

NF-1 MRS data summary									
Patient ID #		CSI array size	7x6	MR Scanner:	SP				
MR #		ROI dimension:	x = 98						
Date of birth	Apr-10-72		y = 84 mm						
Date of MRS	Nov-15-94		z = 15 mm						
Head circumference		ROI position:	Px = 4.1 mm						
tumor location	left optical radiation		Py = -3.2 mm						
control location			Pz = -11.2 mm						
Date of MRS processing	Sep -2-95	voxel shift:	DPx = 0 mm						
			DPy = 0 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
4, 2 (23)	N		N	0.83	0.92	3.37	2.65	1.19	4.6
4, 3 (24)	N		N	1.1	1.18	3.1	3.22	1.41	4.16
4, 4 (25)	N		N	3.05	1.01	2.88	0.48	7	5.23
4, 5 (26)	P(0-25%)		N	5.54	1.85	3.51	1.56	5.12	2.85
4, 6 (27)	P(75-100%)		N	0.41	0.51	1.54	0.86	2.19	0.78
5, 3 (31)	N		P(0-25%)	2.47	0.6	2.3	4.07	2.88	1.38
5, 4 (32)	N		P(25-50%)	1.15	0.8	1.54	3.37	0	0.42
5, 5 (33)	P(25-50%)		N	2	1.26	2.44	3.44	3.11	4.34
5, 6 (34)	Y		N	0.67	0.47	0	0	1.97	0.3
6, 2 (37)	N		P(75-100%)	6.16	0.75	4.42	3.36	2.41	3.07
6, 3 (38)	N		P(0-25%)	2.48	1.22	5.77	4.97	5.07	7.12
6, 4 (39)	N		P(25-50%)	4.73	0.9	5.05	7.62	3.43	7.98
6, 5 (40)	P(50-75%)		N	1.46	1.51	3.64	3.38	5.84	4.32
6, 6 (41)	Y		N	0.61	0.41	2.61	3.31	0.83	0.53

entered SMW 7/29/96

i=1
2
3
4
5
6

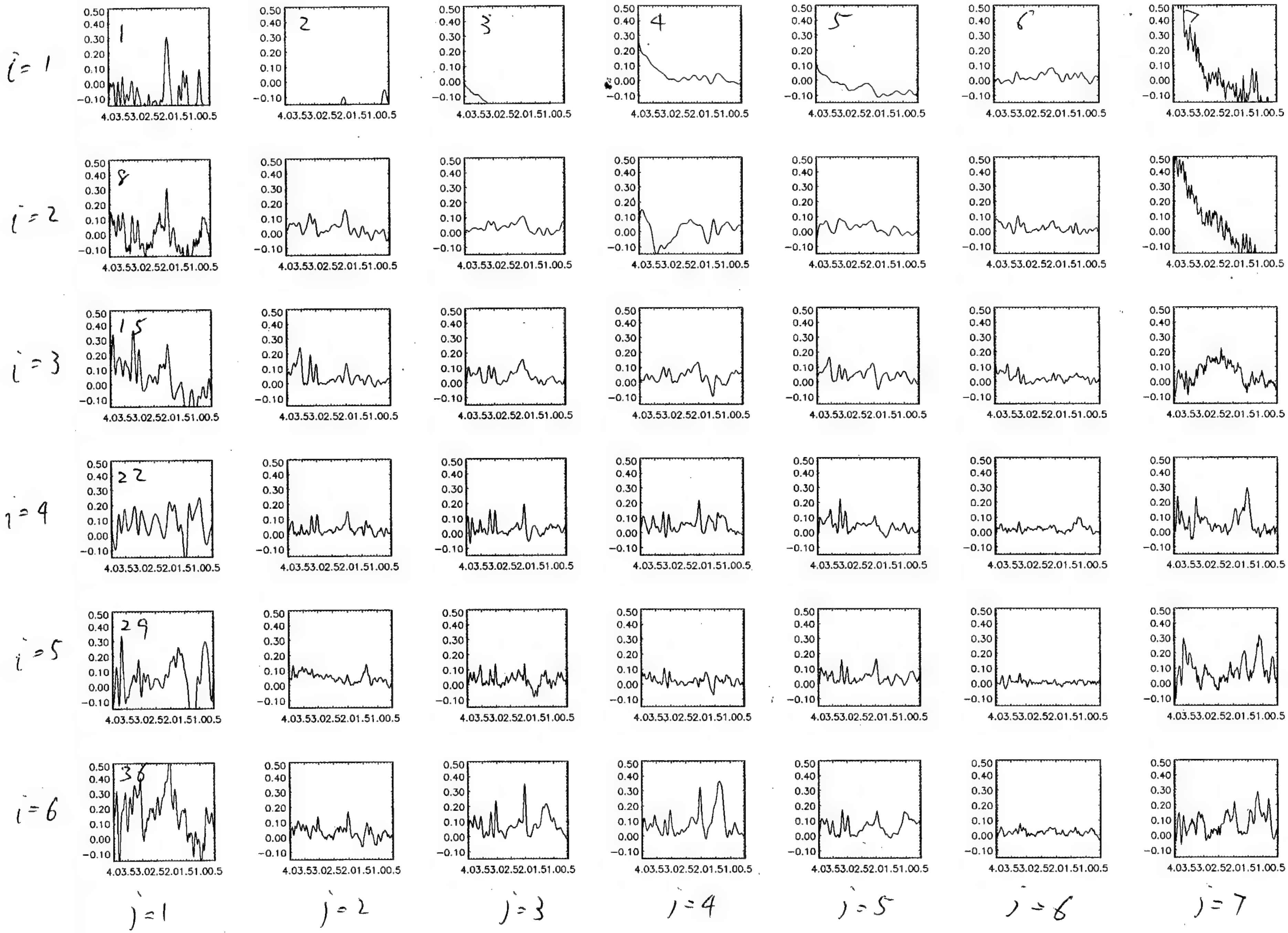


j=1 2 3 4 5 6 7

11-16-94

9/2/95

11-15-94



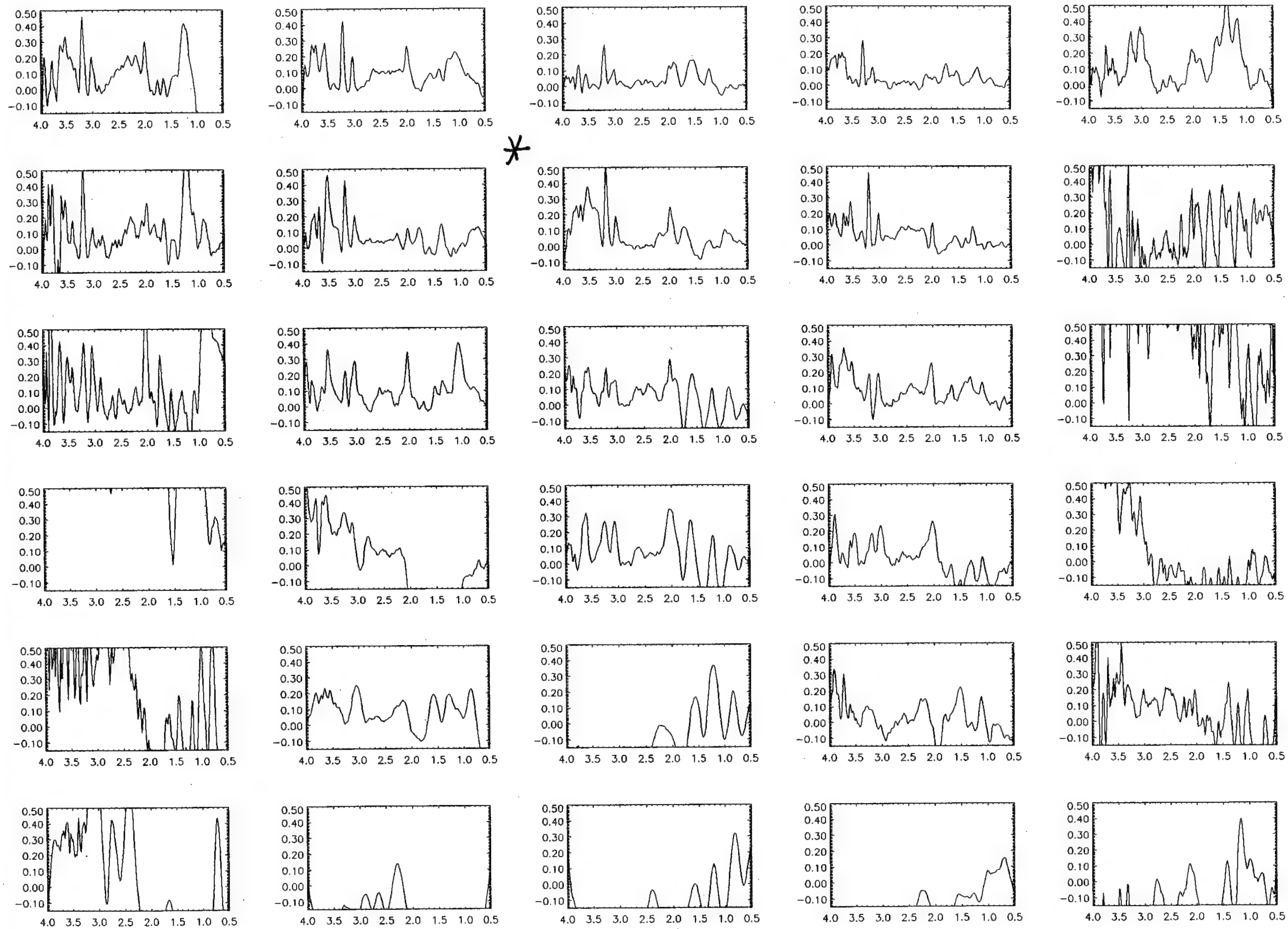
1
2
3
4
5
6
7
8
15
22
29
36
i=1
i=2
i=3
i=4
i=5
i=6
j=1
j=2
j=3
j=4
j=5
j=6
j=7
0.50
0.40
0.30
0.20
0.10
0.00
−0.10
4.03.53.02.52.01.51.00.5

NF-1 MRS data summary									
Patient ID #		CSI array size	5x6	MR Scanner:	SP				
MR #		ROI dimension:	x = 70 mm						
Date of birth	Oct-11-93		y = 84 mm						
Date of MRS	Aug-23-95		z = 15 mm						
Head circumference		ROI position:	Px = 2.8 mm						
tumor location			Py = -10.4 mm						
control location			Pz = 28.3 mm						
Date of MRS processing	Sep-16-95	voxel shift:	DPx = 0 mm						
			DPy = 0 mm						
metabolite levels									
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	N-Acetyl-Aspartate
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)						
1, 2 (2)	N		N	3.62	1.58	2.06	2.65	5.54	3.39
1, 3 (3)	P(25-50%)		N	0.56	1.13	1.88	0	2.31	2.49
1, 4 (4)	P(0-25%)		N	3.2	0.94	2.08	0	1.37	1.55
2, 2 (7)	P(50-75%)		N	6.28	1.7	3.08	2.35	1.27	0.93
2, 3 (8)	Y		P(25-50%)	6.35	2	2.57	4.63	0	4.58
2, 4 (9)	P(50-75%)		P (0-25%)	4.54	1.46	2.28	0	7.96	0
3, 2 (12)	Y		N	3.93	0.96	6.37	0	8.93	5.38
3, 3 (13)	Y		P (0-25%)	3.96	1.24	3.45	0	6.94	5.37
3, 4 (14)	Y		N	4.09	0.74	2.61	0.49	6.85	3.34
3, 5 (19)	P(25-50%)		N	2.91	1.24	5.39	3.91	0.18	5.1

Entered 7-8-96

8-23-95
Shift 5°

8-23-95. shift = δ_0^c



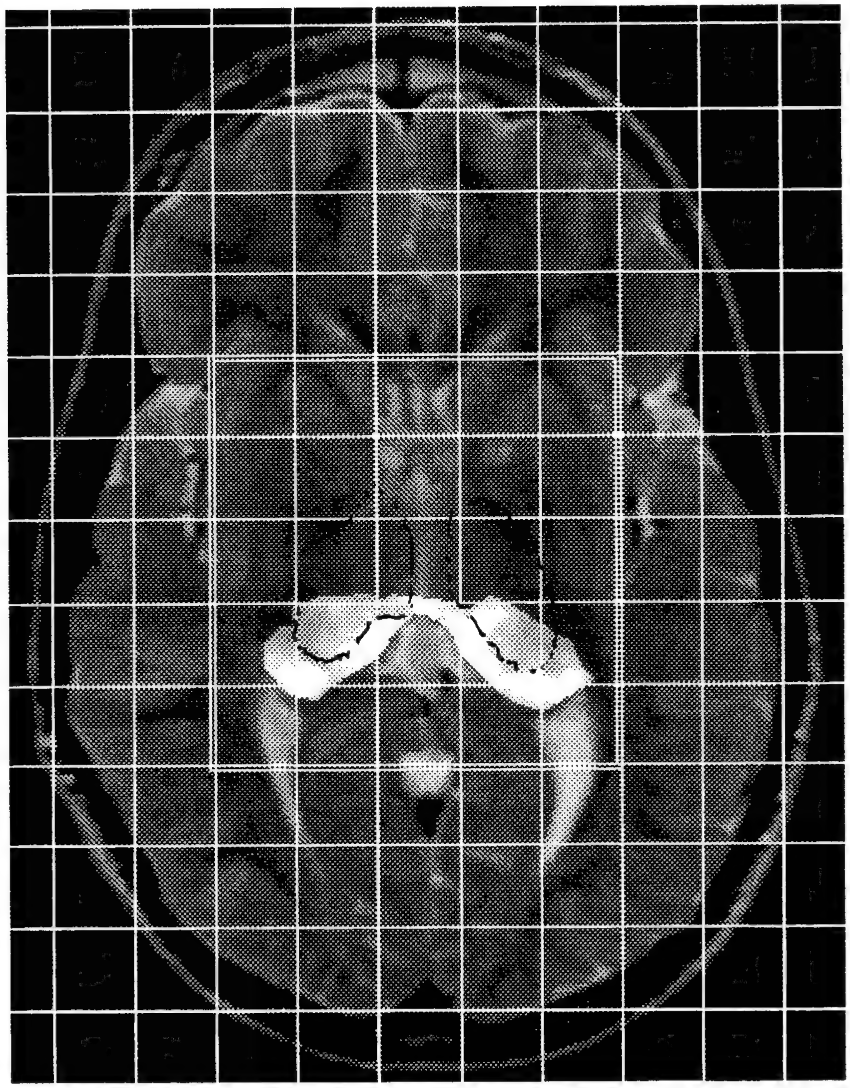
_T_6_20_96 # 601 1st MRS entered Sheila 7.1.96

NF-1 MRS data summary											
Patient ID #		CSI array size	5x5	MR Scanner:	SP						
MR #		ROI dimension:	x = 70 mm								
Date of birth	Nov-30-88		y = 70 mm								
Date of MRS	Jun-20-96		z = 12 mm								
Head circumference		ROI position:	Px = 4.1 mm								
tumor location			Py = -12.2 mm								
control location			Pz = 10.3 mm								
Date of MRS processing	Jun-22-96	voxel shift:	DPx = -3.0 mm								
			DPy = 3.0 mm								
metabolite levels											
voxel index	tumor presence	location	CSF presence	Myo-inositol	Choline	Creatine	Glutamate	Glutamine	NAA	Area Cr/Cho	Area NAA/Cho
i, j (nth)	Y, N, P (in quartile)		Y,N, P (in quartile)								
1, 2 (2)	N		N	1.65724	1.34341	4.83479	5.58428	2.21511	5.81538	1.19963129	1.44293998
2, 2 (7)	N		P(0-25%)	2.36629	1.01833	5.62177	0.512339	5.62803	7.97317	1.8401926	2.60988416
2, 4 (9)	N		N	2.5716	1.94402	4.14165	0.00834913	6.22531	7.04782	0.71015216	1.2084615
3, 2 (12)	N		N	2.39336	1.50735	3.37971	3.61636	2.69451	7.75561	0.74738448	1.71506507
3, 3 (13)	N		P(0-25%)	8.00157	2.46437	4.91394	9.69974	0	5.12937	0.6646648	0.6938041
3, 4 (14)	N		N	2.16025	2.07806	4.25259	4.67043	0.0095173	5.11814	0.68214104	0.82098047
4, 2 (17)	P(75-100%)		N	3.49748	1.96768	7.52003	0	10.859	5.5902	1.27392496	0.94700358
4, 3 (18)	P(25-50%)		P(25-50%)	3.13227	1.09442	3.14041	0	12.9933	6.9604	0.95649141	2.11996613
4, 4 (19)	P(75-100%)		N	4.08113	1.59488	5.48017	1.21271	4.42119	5.12642	1.14536726	1.07143275
5, 4 (24)	P(0-25%)		P(0-25%)	0.56332	1.00821	3.66902	2.18702	11.2214	5.90826	1.21304755	1.95338273

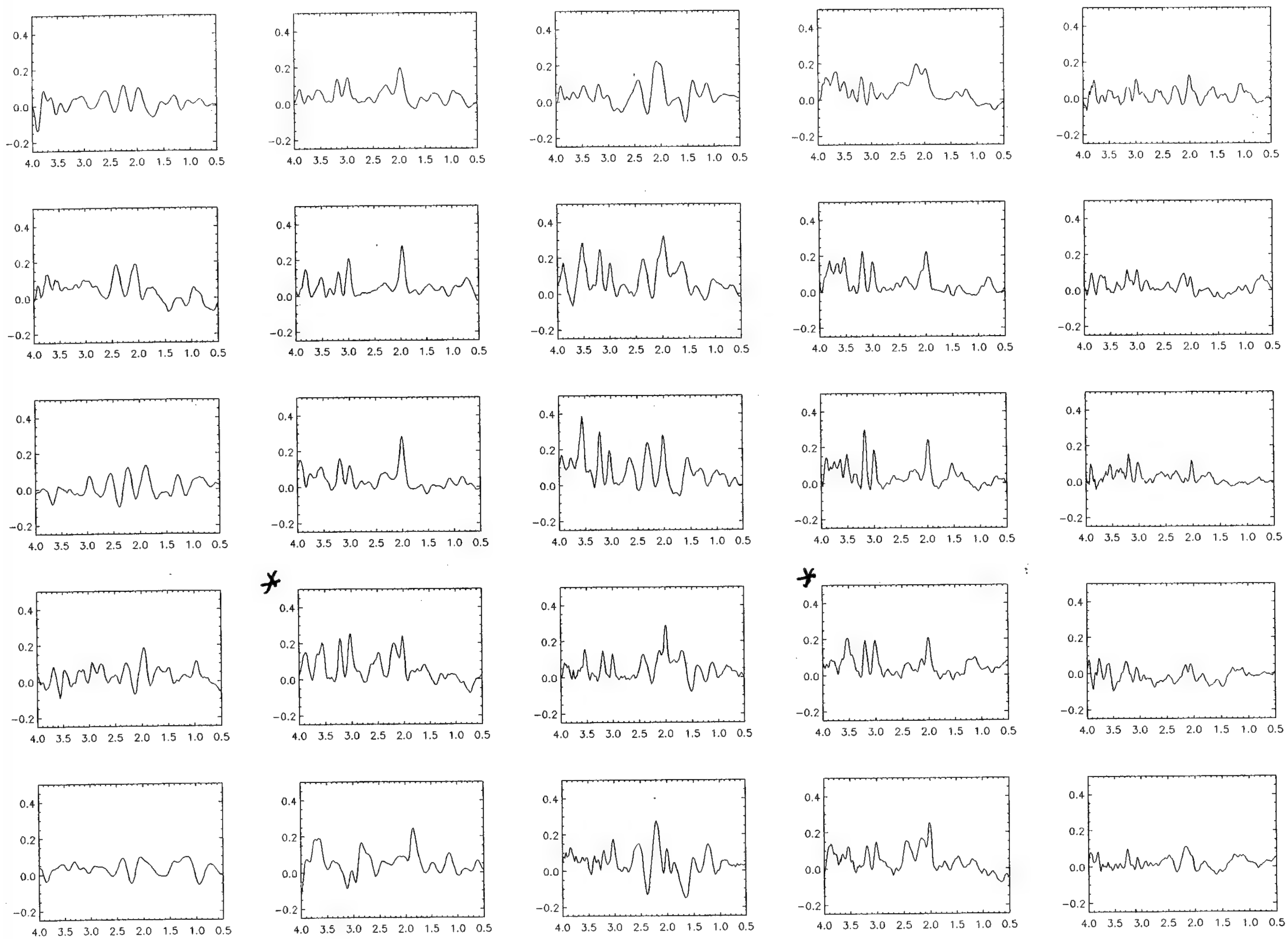
6-20-96

NF-1
SE40651

grid shift: $\begin{cases} \Delta x = -3 \\ \Delta y = 3 \end{cases}$



1-20-96



Appendix 4

t27								
slice	volume	type	area	averg	min	max	std	count
114	1	POL	6	13122.5	12486	13960	736	78734.9
116	1	POL	6	13339.4	12746	14134	696	80036.6
124	1	POL	6	13700.8	12573	14308	609	82204.8
126	1	POL	6	13715.2	12660	14308	605	82291
114	2	POL	9	13623.6	13179	13874	233	122612.7
116	2	POL	9	13556.2	13007	13874	274	122006
124	2	POL	7	12845.9	12139	13353	428	89921.5
126	2	POL	7	12957.7	12400	13441	349	90704
114	3	POL	26	11492.9	8498	12746	1094	298814.4
116	3	POL	26	11736.3	9018	12746	967	305144.1
124	3	POL	17	12318.6	11272	13787	950	209416.5
126	3	POL	17	12017.5	10926	13614	1025	204297
114	4	POL	19	13682.6	12920	14741	587	259970.2
116	4	POL	19	13614.1	12573	14827	675	258667.2
124	4	POL	23	12886.4	11445	14308	897	296387.3
126	4	POL	23	12460.4	10839	14221	1023	286590
114	5	POL	18	13903.1	12833	15522	1480	250255.8
116	5	POL	18	13874.5	13007	15261	1318	249740.2
124	5	POL	20	12959.5	12053	13874	518	259190.5
126	5	POL	20	12499.9	11360	13267	478	249998
114	6	POL	17	13767	13006	14741	405	234039
116	6	POL	17	13828.3	13267	14568	359	235081.6
124	6	POL	18	13768.3	12660	14308	444	247830.2
126	6	POL	18	13358.8	12574	13788	318	240458
114	9	POL	33	14200.1	11792	15088	718	468601.9
116	9	POL	33	13503.8	11446	14741	680	445627
124	9	POL	18	11547.4	9191	12833	971	207853.7

126	9	POL	18	11330.6	9192	12660	943	203950
114	10	POL	40	14784.8	13006	15434	601	591392.2
116	10	POL	40	14245.1	12400	15261	630	569802.1
124	10	POL	20	12903.2	11792	13787	556	258063.2
126	10	POL	20	12764.3	11273	13874	600	255287
114	15	ELP	7.1	12960.1	12226	13700	5794	91588
116	15	ELP	7.1	13208.1	12313	13960	5133	93340.5
114	16	ELP	7.3	13110.4	11619	13787	5887	96147.6
116	16	ELP	7.3	13421.8	12140	13960	5270	98431.8
114	17	POL	30	14596.8	13874	15522	388	437904.1
116	17	POL	30	14524.7	13441	15609	605	435740.7
124	17	POL	23	12200.4	11533	13006	358	280608.9
126	17	POL	23	11487.7	10839	12313	338	264216
114	18	POL	19	14750.6	13700	15434	502	280261.2
116	18	POL	19	14645.5	13613	15348	570	278264.1
124	18	POL	23	13240.8	12313	14134	434	304539.5
126	18	POL	23	12860.1	11967	14048	512	295783
114	19	ELP	16.7	11272.7	10318	11879	5058	188452.9
116	19	ELP	16.7	10928.6	10406	11532	4289	182700.7
114	20	ELP	17.4	9712.1	8498	10058	4372	168533.6
116	20	ELP	17.4	9579	9191	9885	3751	166234.1
114	21	POL	49	10405.5	8411	12573	866	509871.9
116	21	POL	49	10499.4	8497	12659	891	514468.8
124	21	POL	40	10576.9	9451	11966	638	423077.1
126	21	POL	40	10399.1	9105	11620	656	415965
114	22	POL	41	11691.5	10145	12746	836	479351.6

116	22	POL	41	11664	10058	12746	756	478223.3
124	22	POL	47	11400.2	10405	12226	552	535808.9
126	22	POL	47	11365	10145	12574	550	534157
114	23	POL	67	14084	10926	16302	1564	943626.9
116	23	POL	67	14241.8	11186	16476	1594	954203.7
114	24	POL	49	15865.2	11359	18296	2031	777394.2
116	24	POL	49	15782	11706	17776	1826	773320.4
114	29	POL	56	14049.3	10665	16648	1707	786763.6
116	29	POL	56	13841.7	10665	16042	1579	775134.8
124	29	POL	41	11636.6	10058	13353	890	477100.2
126	29	POL	41	11131	9452	13181	907	456373
114	30	POL	82	14250.7	11099	16562	1492	1168556.9
116	30	POL	82	13856.3	10578	15868	1304	1136214.4
124	30	POL	57	12628.3	10665	14134	1005	719812.4
126	30	POL	57	12359	10232	13701	1018	704461
114	31	POL	29	13539.3	11099	16475	1264	392639.1
116	31	POL	29	13488.5	11186	16389	1266	391167.2
124	31	POL	22	13302.8	11792	14394	699	292661.2
126	31	POL	22	12987.5	11533	13874	595	285724
114	32	POL	21	13919.7	12920	14741	470	292313.2
116	32	POL	21	14089	13354	15001	424	295868.7
124	32	POL	23	13244.7	10925	14308	731	304628
126	32	POL	23	12645.3	10059	14048	865	290841
114	33	POL	1	14654.2	1116853	14654	4	14654.2
116	33	POL	1	14914.6	1085094	14914	4	14914.6
114	34	POL	1	14914.5	1116853	14914	0	14914.5
116	34	POL	1	14741	1085094	14741	0	14741

114	35	POL	15	14215.5	11706	15001	1045	213232.1
116	35	POL	15	14278.8	11619	15088	1093	214181.6
124	35	POL	8	12378.5	11880	12747	251	99028.1
126	35	POL	8	12194.1	11706	12660	277	97553
114	36	POL	14	14679.5	13006	15868	998	205513.5
116	36	POL	14	14456.5	12573	15609	990	202390.9
124	36	POL	6	13007.2	12660	13267	223	78043.2
126	36	POL	6	12313.7	11967	12574	223	73882
148	41	POL	412	7853.8	6156	9278	592	3235764
150	41	POL	411	7691.9	5983	9192	559	3161368
148	42	POL	400	9837	7631	12140	1031	3934790
150	42	POL	395	9531.2	7371	11446	1037	3764826
124	43	POL	7	10034	9625	10405	273	70238
126	43	POL	7	9823.6	9192	10145	288	68765
124	44	POL	10	9451.7	9104	9712	169	94516.5
126	44	POL	10	9486.5	9105	9799	216	94865
124	51	POL	57	13592.8	10839	16476	1537	774791.9
126	51	POL	57	13203.4	10666	15782	1338	752593
124	52	POL	66	14038.5	12139	15608	1052	926542.7
126	52	POL	66	13808.6	12227	15175	882	911368
148	63	ELP	6.7	8676.4	8238	9452	42	58206.5
150	63	ELP	6.8	8961.4	8671	9278	0	60533.9
148	64	ELP	5.1	9008	8585	9192	46340	45953.8
150	64	ELP	6.5	9431.6	9105	9799	0	61263.6
148	95	POL	297	8509.8	5896	11013	1124	2527411

150	95	POL	236	8499	6330	10579	986	2005754
148	96	POL	280	9109.2	6850	11620	1137	2550576
150	96	POL	232	8944.5	6937	11099	1029	2075124
114	101	POL	1963	11226.5	4248	16736	2817	22037590
116	101	POL	1963	11182.4	5029	16649	2696	21951088
124	101	POL	1972	10732.6	5982	16476	1950	21164604
126	101	POL	1972	10577.8	5896	15782	1838	20859408
114	102	POL	1946	11716.3	4681	18296	2999	22799920
116	102	POL	1946	11645.1	4595	17776	2892	22661426
124	102	POL	1889	11138.2	5549	16388	2240	21040066
126	102	POL	1889	11014.1	5896	15956	2079	20805652

t18								
slice	volume	type	area	averg	min	max	std	count
114	1	POL	11	7112.8	6477	7416	289	78241
116	1	POL	6	7282.8	7134	7463	136	43697
126	1	POL	6	7525	6899	8260	488	45150
128	1	POL	6	7689.5	7087	8401	499	46137
114	2	POL	8	7497.6	7322	7650	118	59981
116	2	POL	9	7347.7	6852	7885	341	66129
126	2	POL	8	8612.6	8026	8871	259	68901
128	2	POL	8	8512.8	8026	8777	218	68102
114	3	POL	27	7076.7	5961	8026	592	191070
116	3	POL	25	7081.4	6289	8214	575	177036
126	3	POL	17	7277.4	6148	7979	788	123716
128	3	POL	17	7225.1	6054	8026	840	122827
114	4	POL	25	6965.1	6148	7932	629	174127
116	4	POL	26	7453.6	6946	8495	483	193793
126	4	POL	24	7536.8	7134	8167	509	180882
128	4	POL	24	7628.8	7369	8214	472	183091
114	5	POL	15	7909.9	6946	8683	580	118649
116	5	POL	22	7695	5961	8730	849	169290
126	5	POL	23	7685	6993	8260	322	176754
128	5	POL	23	7429.9	6383	8120	375	170888
114	6	POL	22	8486.6	7509	9293	485	186705
116	6	POL	21	8168.9	7369	8965	421	171547
126	6	POL	22	7861.5	7040	8401	364	172953
128	6	POL	22	7629	7040	8167	307	167838
154	6	ELP	10.3	5707.6	5632	5773	79	58929.3
114	9	POL	30	8670.3	7556	9293	574	260108
116	9	POL	33	8142.4	5491	9105	848	268699

126	9	POL	20	7568.1	5444	8589	803	151362
128	9	POL	20	7441.4	5397	8260	761	148828
114	10	POL	34	9171.5	8307	9997	451	311832
116	10	POL	38	8922.6	8026	9622	396	339057
126	10	POL	20	9112.4	8260	9762	372	182248
128	10	POL	20	8926.9	8026	9575	363	178538
114	15	ELP	7.1	7888.9	7322	8120	147	56191
116	15	ELP	7.1	7794.4	7556	8026	94	55631.5
114	16	ELP	7	7969.2	7275	8448	93	55544.2
116	16	ELP	6.9	8205.9	7791	8542	208	56967.7
114	17	POL	20	7779.4	6758	8401	457	155587
116	17	POL	32	8074.2	7556	8542	268	258373
126	17	POL	24	6662.7	6148	7416	435	159904
128	17	POL	24	6437.5	6007	7134	389	154501
114	18	POL	28	7955.5	6899	8495	432	222753
116	18	POL	26	7641.3	6054	8448	636	198674
126	18	POL	21	6961.9	6195	7885	434	146200
128	18	POL	21	6740.6	5820	7791	462	141553
114	19	ELP	13.7	5594.9	5350	6195	125	76896
116	19	ELP	15.5	5707.3	5444	6101	54	88507.4
114	20	ELP	16.2	5687.2	5397	6007	124	91966.4
116	20	ELP	15.8	5606	5163	6195	87	88405.6
114	21	POL	45	7138.1	5632	8730	716	321213
116	21	POL	49	7582.3	6289	9105	643	371531
126	21	POL	43	7554.2	5914	8918	742	324831
128	21	POL	43	7430.9	5726	8730	799	319528
114	22	POL	32	7243.9	6383	8073	476	231806

116	22	POL	47	7454.6	7040	7885	240	350364
126	22	POL	56	7323.4	5867	8260	565	410111
128	22	POL	56	7239.5	5820	7885	546	405413
114	23	POL	37	7399.1	6805	8401	475	273766
116	23	POL	62	7591.3	6336	8871	654	470659
114	24	POL	46	8604.4	6712	9716	901	395804
116	24	POL	51	8868.9	7603	9716	722	452315
114	29	POL	80	8607.8	6336	10748	1088	688626
116	29	POL	55	8107.7	5914	10138	1203	445922
126	29	POL	52	8003.2	5585	10795	1113	416167
128	29	POL	52	7922.8	5303	10373	1093	411988
114	30	POL	87	8525.9	6524	10467	918	741757
116	30	POL	84	8623.7	6852	10467	894	724390
126	30	POL	66	8306	7087	10232	851	548194
128	30	POL	66	8379.3	7181	9903	802	553037
114	31	POL	27	8262.3	6899	9293	618	223082
116	31	POL	26	8215.3	6289	9762	1015	213598
126	31	POL	26	7771.3	6758	8824	586	202053
128	31	POL	26	7480.7	6101	8683	764	194497
114	32	POL	31	8296.8	6712	9762	760	257202
116	32	POL	20	8680.5	7650	9716	620	173611
126	32	POL	20	8417.7	7697	9199	518	168353
128	32	POL	20	7983.5	7040	8777	498	159670
114	33	POL	4	8166.5	7932	8307	144	32666
116	33	POL	1	7744	999999	7744	0	7744
114	34	POL	1	7228	999999	7228	0	7228
116	34	POL	1	6430	999999	6430	0	6430

114	35	POL	10	7777.1	6993	8073	397	77771
116	35	POL	15	7371.9	6242	8167	605	110578
126	35	POL	10	7880.4	7650	8214	242	78804
128	35	POL	10	7781.8	7416	8120	259	77818
114	36	POL	20	8382.5	7932	8636	165	167649
116	36	POL	9	7660.7	7181	8214	287	68946
126	36	POL	8	7902.6	7791	7979	66	63221
128	36	POL	8	7509.5	7369	7603	77	60076
152	41	POL	599	5824.9	3895	7040	613	3489090
154	41	POL	495	5723.7	4083	6712	503	2833222
152	42	POL	494	5871.9	4505	7463	548	2900700
154	42	POL	423	5721.7	4459	6805	410	2420293
126	43	POL	11	5559.5	5116	5961	242	61154
128	43	POL	11	5610.6	5397	5961	182	61717
126	44	POL	12	5389.5	4928	5820	288	64674
128	44	POL	12	5659.3	5256	6007	245	67912
126	51	POL	60	7547.9	6336	8495	550	452871
128	51	POL	60	7665.1	6524	8495	540	459907
126	52	POL	75	8139.7	6477	9105	692	610480
128	52	POL	75	8257.4	6805	9340	725	619302
152	63	ELP	11.6	5873.3	5210	6101	164	68286.9
154	63	ELP	11.2	5885.4	5491	6054	22	66008.4
152	64	ELP	5.5	5583.1	5163	5820	46340	30506.6
152	95	POL	276	6073.3	4459	7556	690	1676224
154	95	POL	233	5706.3	3801	7040	746	1329568

152	96	POL	307	5812.4	3708	7744	886	1784405
154	96	POL	209	5714.6	3754	7275	774	1194357
114	101	POL	2071	6809.7	2675	11124	1612	14102870
116	101	POL	2110	6754.6	2581	10795	1625	14252214
126	101	POL	2046	6625.3	3238	10936	1356	13555266
128	101	POL	2046	6597.1	3144	10373	1326	13497627
114	102	POL	2056	6873.9	2581	10560	1724	14132837
116	102	POL	2130	6838.4	2628	10467	1699	14565771
126	102	POL	2103	6724.2	3285	10232	1479	14140920
128	102	POL	2103	6726.6	3754	9903	1411	14146119

q57								
slice	volume	type	area	averg	min	max	std	count
70	1	POL	6	7154.5	6756	7565	242	42926.8
72	1	POL	9	6851	6392	7201	242	61659.2
80	1	POL	12	6662.2	6028	7282	404	79946.6
82	1	POL	12	6581.3	5947	7282	445	78975.6
70	2	POL	6	7592.8	7201	7808	202	45556.6
72	2	POL	4	7130.9	40458784	7484	323	28523.5
80	2	POL	15	6991.3	6149	7808	525	104869.3
82	2	POL	15	6921.2	6190	7646	485	103817.3
70	3	POL	21	5928.2	5826	7161	647	124491.8
72	3	POL	27	5836.6	4167	6797	687	157587.1
80	3	POL	18	6338.5	5866	7646	404	114093.9
82	3	POL	24	5768.8	4935	7120	687	138450.1
70	4	POL	21	6034.1	5664	6797	364	126717
72	4	POL	33	6127.7	5502	7403	485	202213.2
80	4	POL	25	5924.8	5623	7039	525	148119.8
82	4	POL	25	5839	5461	7080	647	145975.4
70	5	POL	52	6997	4976	7889	647	363846.2
72	5	POL	15	5426.9	3884	7120	1011	81403.2
80	5	POL	25	6366.6	5785	6837	242	159165
82	5	POL	25	6020.3	5178	6392	364	150506.8
70	6	POL	50	6779.3	5057	8213	728	338964
72	6	POL	18	6900.5	6352	7201	242	124208.6
80	6	POL	22	6348.4	5664	6797	283	139663.9
82	6	POL	22	6039.4	5057	6675	404	132866.8
70	7	POL	15	7536.1	6635	8213	485	113042
70	8	POL	5	7412.1	7201	7768	202	37060.3

70	9	POL	41	6422.1	4693	7646	687	263306
72	9	POL	37	7035.5	5704	7687	525	260312.1
80	9	POL	21	6433	5906	6958	323	135092
82	9	POL	21	6011	4855	6675	445	126231.5
70	10	POL	44	7050.9	6513	7565	242	310238.2
72	10	POL	48	7135.9	6271	8051	445	342524.4
80	10	POL	27	6483.9	5381	6756	283	175065.3
82	10	POL	27	6304.1	5300	6675	242	170210.3
70	13	POL	7	6386.7	5826	6918	323	44707
70	14	POL	8	6645.4	5866	7323	485	53162.9
70	15	ELP	5.7	6547.4	5583	7080	1874900	37132.6
72	15	ELP	7.1	7019.3	6513	7282	99	49970.1
70	16	ELP	4.4	6929	6554	7120	1874900	30314.3
72	16	ELP	7.4	6624.8	5826	6999	202	49180.2
70	17	POL	24	6948.8	5785	7929	525	166771.3
72	17	POL	23	6811.2	5664	7646	485	156656.6
80	17	POL	28	5827.5	5259	6837	445	163170.4
82	17	POL	28	5769.7	5057	6918	485	161552.1
70	18	POL	31	7072.5	6554	7849	283	219246.4
72	18	POL	20	7258.3	6716	8051	323	145166.3
80	18	POL	25	6219.3	5300	7363	606	155483.3
82	18	POL	25	6133.6	4855	7403	728	153338.9
70	19	ELP	24.4	4530.4	3803	4976	326	110560.3
72	19	ELP	28.9	4438.9	3884	4935	185	128443.9
70	20	ELP	30.4	4832.5	3884	5300	239	146708.3
72	20	ELP	20.1	4757.6	4248	5057	171	95841.7

70	21	POL	48	6666.4	5745	7282	364	319988.8
72	21	POL	48	6642.8	6068	7323	323	318856
80	21	POL	53	5760.4	4693	6352	404	305302.3
82	21	POL	53	5554.3	4369	6271	404	294378.4
70	22	POL	41	6284.9	5461	6958	323	257682.2
72	22	POL	32	6329.3	5623	6958	364	202536.9
80	22	POL	65	5922.5	4693	7161	647	384965.7
82	22	POL	65	5760.1	4652	7039	606	374406
70	23	POL	14	8207.4	7444	8900	445	114903.1
72	23	POL	58	7822.5	6068	9345	849	453705.2
70	24	POL	14	8655.3	8455	9345	404	121174.2
72	24	POL	54	8312.8	6028	9426	768	448890.7
70	25	POL	8	6726.3	6554	6958	80	53810.2
70	26	POL	8	6468.4	5987	7282	566	51746.8
70	29	POL	49	7091	5340	8496	647	347460.4
72	29	POL	70	7347.9	6271	8455	485	514353
80	29	POL	49	6339.6	5097	7727	647	310642.8
82	29	POL	49	5833.5	4733	7403	647	285841.6
70	30	POL	54	7143.2	5987	7687	445	385734.4
72	30	POL	82	7138	5664	8010	566	585317.8
80	30	POL	64	6493.6	4976	7727	728	415593
82	30	POL	64	6335.6	5259	7525	566	405478.3
70	31	POL	17	7258.8	5947	7606	364	123399.4
72	31	POL	30	6709.4	4248	8496	1254	201282.7
80	31	POL	31	6532.1	5542	7687	566	202496.4
82	31	POL	31	6183.7	5057	7282	606	191693.9

70	32	POL	14	7331.7	7039	7525	161	102644
72	32	POL	31	6790.6	5704	8213	606	210507.3
80	32	POL	23	6651.1	6068	7161	283	152974.8
82	32	POL	23	6422.4	5785	6918	283	147715.2
70	33	POL	7	7328.8	7080	7484	121	51301.8
72	33	POL	2	7302.8	40458784	7323	0	14605.6
70	34	POL	5	7331.1	40458784	7768	283	36655.7
72	34	POL	2	7161.2	6958	7363	202	14322.4
70	35	POL	21	7509.9	6554	7929	283	157708.5
72	35	POL	12	7454.5	6958	7727	161	89454.5
80	35	POL	19	6505.4	5947	7201	323	123601.7
82	35	POL	19	6164.6	5542	6756	323	117128.3
70	36	POL	11	7712.9	7525	7970	202	84842.2
72	36	POL	20	7527.4	6756	7929	323	150547.3
80	36	POL	16	6890.6	6068	7403	364	110250.3
82	36	POL	16	6407.7	5947	6756	202	102522.7
106	41	POL	483	4156.5	2670	5259	647	2007607.2
108	41	POL	469	4006.2	2387	5097	647	1878907.8
106	42	POL	405	4307.7	3317	5340	364	1744625
108	42	POL	423	4151.5	2872	5219	404	1756074.8
80	43	POL	18	4171.8	3681	4531	242	75091.6
82	43	POL	18	4216.7	3722	4490	202	75900.8
80	44	POL	25	4243.3	3964	4450	121	106083
82	44	POL	25	4065.3	3600	4531	202	101632.6
80	51	POL	66	6951.6	6068	7687	404	458803.1
82	51	POL	66	6797.7	6068	7646	404	448647.9

80	52	POL	76	7113.8	5866	8253	647	540651.2
82	52	POL	76	6904.6	5259	7929	647	524750.9
106	63	ELP	12.7	3037.8	2872	3277	57	38728
108	63	ELP	9.6	3050	2832	3277	80	29272.7
106	64	ELP	9.7	3440.8	3358	3600	0	33524.8
108	64	ELP	11.1	3647.3	3358	3681	0	40306.1
106	95	POL	427	4513.7	2710	6190	728	1927337
108	95	POL	346	4564.9	2751	5866	606	1579472
106	96	POL	400	4280.4	2467	5704	728	1712177
108	96	POL	350	4276.2	2670	5542	647	1496652.8
70	101	POL	2342	5817.7	1739	9710	1577	13624954
72	101	POL	2273	5824.2	2467	9345	1456	13238451
80	101	POL	2292	5472.7	2467	8091	1132	12543409
82	101	POL	2271	5391	2548	7808	1092	12242881
70	102	POL	2222	5894	2063	9467	1496	13096521
72	102	POL	2286	5792.4	2184	9426	1496	13241364
80	102	POL	2290	5435.1	2751	8253	1173	12446429
82	102	POL	2288	5347.2	2427	7929	1092	12234303

p16								
slice	volume	type	area	averg	min	max	std	count
74	1	POL	12	8102.3	6613	9135	718	97228
76	1	POL	11	8426.2	7397	9078	531	92688
90	1	POL	9	8829.6	7958	10424	773	79466
92	1	POL	8	8966.2	8182	10199	598	71730
74	2	POL	11	10265.6	9415	10648	360	112922
76	2	POL	9	10330.2	9078	10816	541	92972
90	2	POL	9	10467.1	9527	11488	579	94204
92	2	POL	8	10423.6	9807	11096	418	83389
74	3	POL	26	8313.4	6949	9807	833	216148
76	3	POL	29	8257.2	6613	9975	1141	239459
90	3	POL	19	8529.9	7902	10816	1185	162068
92	3	POL	19	9043.1	8630	11152	1069	171818
74	4	POL	21	9225.2	7005	10199	890	193729
76	4	POL	33	9856.3	7733	11320	1078	325258
90	4	POL	22	8525.7	6949	10704	1196	187566
92	4	POL	22	8991.9	8350	11488	1104	197822
74	5	POL	57	8982.2	4091	11488	1790	511983
76	5	POL	15	10079.8	7958	11432	997	151197
90	5	POL	25	9612	7565	10592	825	240300
92	5	POL	25	9208.6	7565	9807	593	230214
74	6	POL	50	10545.7	9191	11376	557	527284
76	6	POL	22	10836.1	9807	11488	502	238395
90	6	POL	22	9908.9	8742	10704	496	217996
92	6	POL	22	9697.4	8630	10199	460	213343
74	7	POL	15	10005.1	8350	11600	899	150077
74	8	POL	10	11589.3	10872	12105	395	115893

74	9	POL	41	8530.4	5268	10816	1404	349747
76	9	POL	47	9822.6	6725	10984	950	461664
90	9	POL	28	7701.4	6164	8350	515	215640
92	9	POL	22	7728.4	6501	8350	556	170025
74	10	POL	48	9969.4	9078	11264	590	478531
76	10	POL	46	10541.7	9247	11432	553	484919
90	10	POL	28	9560.9	8630	10255	439	267705
92	10	POL	28	8994.4	6837	10087	789	251843
74	13	POL	7	5587.9	4875	6444	475	39115
74	14	POL	8	6556.5	5828	7565	595	52452
74	15	ELP	5.8	8955.1	7733	9471	46340	51742.4
76	15	ELP	14.9	7671.7	6220	9191	445	114515.8
74	16	ELP	4.4	9292.6	9078	9415	46340	40723.2
76	16	ELP	7.4	9482.3	9022	9919	55	70376.2
74	17	POL	30	9414.7	7285	11488	1240	282442
76	17	POL	23	9180.9	6949	11264	1075	211160
90	17	POL	21	7693.5	6388	9583	1094	161564
92	17	POL	23	7726	6164	9583	1191	177699
74	18	POL	30	8734.7	7341	10311	911	262040
76	18	POL	20	9193.2	7509	10424	1017	183865
90	18	POL	19	7497.5	4987	9863	1794	142453
92	18	POL	22	7741.2	5548	9695	1473	170306
74	19	ELP	31.5	6326.7	5380	7341	436	199398
76	19	ELP	29.1	6536.2	5716	7285	320	190481.8
74	20	ELP	28.7	6396.2	5548	6837	317	183262.3
76	20	ELP	20.4	6299.1	5268	6781	312	128642.1

74	21	POL	55	7446.2	6332	8574	617	409540
76	21	POL	43	7380.3	5604	8798	791	317353
90	21	POL	56	7940.7	5828	9415	677	444677
92	21	POL	56	8095.8	7285	9247	458	453363
74	22	POL	41	8980	7453	10199	650	368182
76	22	POL	39	9166.2	8014	10255	558	357481
90	22	POL	55	9382.1	7229	11264	992	516016
92	22	POL	55	8992.9	7285	10816	1002	494609
74	23	POL	20	8773	7621	10704	769	175459
76	23	POL	58	9778	7397	11825	1166	567125
74	24	POL	20	10684.2	8854	11937	926	213683
76	24	POL	47	10282.8	7677	11713	1390	483290
74	25	POL	12	9937.8	8966	11432	942	119253
74	26	POL	8	8630.2	8070	9191	378	69042
74	29	POL	52	9851.3	7902	11152	788	512267
76	29	POL	68	9811.1	7789	11376	828	667158
90	29	POL	48	8494.7	6501	9807	923	407746
92	29	POL	43	8681	7117	9583	570	373283
74	30	POL	61	10438.3	7902	11713	912	636734
76	30	POL	78	10194.3	7621	11488	951	795157
90	30	POL	63	9725.2	8350	10984	829	612690
92	30	POL	63	9737.6	8406	11208	850	613471
74	31	POL	17	8959.9	7621	10143	709	152318
76	31	POL	30	8884.1	7341	10199	740	266523
90	31	POL	18	7471.9	6949	8014	393	134494
92	31	POL	17	7222.5	6164	8126	554	122783

74	32	POL	12	10021.8	9695	10480	239	120262
76	32	POL	31	10508.4	9415	11713	565	325760
90	32	POL	23	9780.2	7789	11096	828	224945
92	32	POL	20	10053.7	8686	10816	558	201073
74	33	POL	9	10186.9	9359	10984	477	91682
76	33	POL	9	7702.3	7117	8406	418	69321
74	34	POL	5	7587.6	7005	8126	371	37938
76	34	POL	1	7285	999999	7285	0	7285
74	35	POL	22	10688.5	9191	11488	641	235146
76	35	POL	17	8735.6	7397	10087	680	148506
90	35	POL	17	8145.4	6725	9135	722	138472
92	35	POL	17	7443.4	5940	8798	847	126537
74	36	POL	14	9558.9	8630	10424	491	133824
76	36	POL	20	7873.6	6388	9191	539	157473
90	36	POL	17	9055.4	8630	9303	225	153942
92	36	POL	13	8306.8	7341	8742	425	107988
112	41	POL	613	6328.6	2858	8350	986	3879461
114	41	POL	599	6233.4	3754	8070	862	3733809
112	42	POL	629	6980.4	4931	9303	848	4390649
114	42	POL	609	6635.4	4259	8518	764	4040977
90	43	POL	11	5175.7	4931	5884	376	56933
92	43	POL	7	4979.1	4651	5268	185	34854
90	44	POL	12	5963.3	5604	6332	259	71560
92	44	POL	11	5802.5	5548	6108	229	63828
90	51	POL	61	9003.2	7846	9807	474	549193
92	51	POL	59	9269.4	8574	10255	428	546894

90	52	POL	39	10259.7	8462	11825	848	400129
92	52	POL	33	10516.8	9303	11488	689	347055
112	63	ELP	14.2	5148	4931	5660	136	73293
114	63	ELP	7.7	5109.3	4931	5492	27	39301.7
112	64	ELP	13.3	5610.8	4987	6220	406	74358.2
114	64	ELP	8.2	5460.9	5212	5660	84	44553.5
112	95	POL	336	6348.4	3810	8742	1071	2133061
114	95	POL	234	6576.4	4259	8462	908	1538876
112	96	POL	286	6319.7	3979	8518	891	1807423
114	96	POL	267	6238.4	3642	8630	947	1665641
74	101	POL	2289	7227.7	1513	12385	2401	16544258
76	101	POL	2325	7149.1	1849	12329	2356	16621570
90	101	POL	2228	7271.8	3418	12161	1692	16201469
92	101	POL	2069	7380.6	3530	11713	1705	15270428
74	102	POL	2327	7480.6	1737	12553	2694	17407448
76	102	POL	2261	7510.2	1569	12273	2670	16980656
90	102	POL	2317	7941.7	3474	12105	1924	18401008
92	102	POL	2167	8036.6	3250	11825	1960	17415252

o78								
slice	volume	type	area	averg	min	max	std	count
128	1	POL	6	6238.3	5892	6634	302	37430
130	1	POL	16	6617.4	5781	7301	436	105879
138	1	POL	11	6512.5	6078	6819	243	71638
140	1	POL	8	6457.8	6337	6634	134	51662
128	2	POL	8	7296.2	7041	7560	174	58370
130	2	POL	11	7112.2	6004	7746	514	78234
138	2	POL	14	6583.4	6004	7227	380	92168
140	2	POL	14	6742.3	6300	7041	198	94392
128	3	POL	21	5481.3	4521	6189	471	115107
130	3	POL	21	5576.7	4706	6523	457	117110
138	3	POL	16	5515	5225	5744	145	88240
140	3	POL	16	5121.2	4744	5448	230	81939
128	4	POL	16	6170.4	5855	6597	270	98726
130	4	POL	16	5892.5	5855	6523	343	94280
138	4	POL	19	5913.8	5485	6448	478	112363
140	4	POL	19	5467.3	5114	6300	693	103878
128	5	POL	48	6444.6	5077	7338	515	309341
130	5	POL	48	6159.6	3632	7041	783	295661
138	5	POL	17	5598.2	5151	5967	221	95169
140	5	POL	17	5343.1	4669	5930	375	90833
170	5	ELP	7.2	3852.5	3520	4076	111	27604.6
128	6	POL	34	6731.8	5670	7338	406	228880
130	6	POL	34	6545.4	5892	7153	311	222542
138	6	POL	18	6250.7	5781	6708	258	112513
140	6	POL	18	5738	5151	6448	386	103284
170	6	ELP	7.1	3600.1	3335	3928	46340	25471.4
128	7	POL	7	6093.7	5818	6597	361	42656

130	7	POL	7	5241.3	4855	6004	468	36689
128	8	POL	10	6581.8	6263	7227	308	65818
130	8	POL	10	6537.4	6189	7116	279	65374
128	9	POL	39	7367.5	6485	8153	407	287332
130	9	POL	35	6980	5374	7894	724	244300
138	9	POL	21	6686.7	5225	7338	493	140420
140	9	POL	21	6616.1	5114	7227	532	138938
128	10	POL	33	7524.2	7116	7783	161	248300
130	10	POL	30	7482.4	7190	7783	161	224473
138	10	POL	21	6628.4	4966	7523	561	139197
140	10	POL	21	6898.6	5781	7227	330	144871
128	13	POL	6	5194.7	4484	5930	474	31168
128	14	POL	7	5929.3	5262	6597	479	41505
128	15	ELP	5.5	7018.5	6819	7153	46340	38840.2
130	15	ELP	5.6	6984.4	6560	7190	46340	38924.5
128	16	ELP	4.3	6985.5	6782	7078	46340	29958.1
130	16	ELP	4.3	7112.3	7004	7190	46340	30495.7
128	17	POL	21	6773.1	6263	7227	290	142235
130	17	POL	21	6702.6	6226	7116	223	140754
138	17	POL	20	5673.8	5299	6004	171	113475
140	17	POL	22	5436	5077	5967	212	119592
128	18	POL	26	6305.9	5633	7116	504	163954
130	18	POL	26	6090.6	5522	6745	375	158356
138	18	POL	22	5527	4929	6189	344	121593
140	18	POL	22	5437.6	4818	6152	437	119628
128	19	ELP	25	5234.9	4781	5670	146	130738.9

130	19	ELP	25	5231	4632	5522	187	130930.3
128	20	ELP	19.3	4557	3743	5077	277	88075.4
130	20	ELP	19.6	4559.5	3891	4929	220	89153.2
128	21	POL	44	5794.8	4113	6708	642	254972
130	21	POL	41	6014.5	5337	6485	301	246594
138	21	POL	41	6032.5	4855	6671	383	247334
140	21	POL	41	6104.8	5633	6560	246	250298
128	22	POL	34	6315.4	5522	6856	287	214723
130	22	POL	34	6222.7	5818	6560	191	211573
138	22	POL	50	6564.8	5596	7560	463	328239
140	22	POL	50	6227.6	5077	7227	489	311379
128	23	POL	18	6678.9	6337	7004	220	120221
130	23	POL	18	6619.3	5967	7190	375	119148
128	24	POL	19	7630.6	7264	8153	296	144982
130	24	POL	19	7673.5	7301	8153	263	145797
128	25	POL	8	5053.9	4558	5818	416	40431
130	25	POL	8	5179	5040	5596	314	41432
128	26	POL	6	6201.3	5818	6597	310	37208
130	26	POL	6	5867.8	5448	6300	309	35207
128	29	POL	44	6926	6152	7375	303	304744
130	29	POL	44	6628.7	5374	7449	521	291661
138	29	POL	27	6565	5818	7190	335	177256
140	29	POL	27	6442.9	5781	6856	241	173958
128	30	POL	42	6969.9	6189	7746	388	292737
130	30	POL	42	6930.2	5967	7857	496	291070
138	30	POL	54	6819.7.	5670	7671	527	368266
140	30	POL	52	6648	5188	7338	592	345695

128	31	POL	14	6670.8	5892	7004	336	93391
130	31	POL	14	6067.3	4818	6856	594	84942
138	31	POL	22	5673.6	4076	6708	713	124819
140	31	POL	22	5147.8	3780	6411	648	113252
128	32	POL	12	7306.9	6856	7671	330	87683
130	32	POL	12	7340.8	7338	7671	349	88090
138	32	POL	17	6478.9	5596	6967	368	110142
140	32	POL	17	6369.9	5485	6930	394	108288
128	33	POL	5	7189.6	6856	7523	219	35948
130	33	POL	5	7033.8	6930	7116	63	35169
128	34	POL	1	7190	999999	7190	0	7190
130	34	POL	1	6930	999999	6930	0	6930
128	35	POL	19	6973.1	6448	7634	329	132489
130	35	POL	16	6814.4	6485	7264	194	109030
138	35	POL	16	6529.4	5855	6967	305	104470
140	35	POL	16	6230.7	5448	6597	273	99691
128	36	POL	13	7164.2	6967	7301	134	93134
130	36	POL	13	7055.5	6856	7375	139	91721
138	36	POL	10	6904.2	6523	7412	273	69042
140	36	POL	10	6463.3	6263	6634	101	64633
168	41	POL	449	4491.9	3372	5559	359	2016844
170	41	POL	358	4341.9	2816	5003	365	1554386
168	42	POL	473	4704.4	3409	6004	441	2225192
170	42	POL	399	4541.4	3558	5188	319	1812022
138	43	POL	14	4529	4188	4818	194	63406
140	43	POL	11	4369.5	4113	4484	121	48065

138	44	POL	16	4208.4	3520	4521	293	67335
140	44	POL	13	4307.3	3891	4558	221	55995
138	51	POL	44	6644.7	5411	7560	635	292365
140	51	POL	44	6898.2	6078	7523	402	303519
138	52	POL	60	6786.9	4855	8005	834	407215
140	52	POL	55	7256.4	5855	8079	657	399101
168	63	ELP	6.9	3651.1	3446	3854	46340	25058.7
168	64	ELP	5.5	3571.8	3409	3780	46340	19516.6
168	95	POL	215	4788.9	2965	5967	660	1029612
170	95	POL	174	4454.9	2409	5781	722	775155
168	96	POL	223	5001.8	3039	6411	880	1115400
170	96	POL	178	4728.7	2631	6078	812	841717
128	101	POL	1830	5680	2594	8487	1238	10394404
130	101	POL	1883	5606.8	2001	8190	1231	10557521
138	101	POL	1929	5590.2	2483	7671	1078	10783501
140	101	POL	1864	5544	2742	7968	1063	10334059
128	102	POL	1880	5724.6	2260	8190	1351	10762226
130	102	POL	1897	5693.7	2297	8153	1286	10800873
138	102	POL	1792	5733.1	2742	8190	1141	10273713
140	102	POL	1737	5668.6	2853	8153	1144	9846445

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slice	volume	type	area	averg	min	max	std	count
116	1	POL	11	6650.5	6105	7123	297	73156
118	1	POL	11	6019.5	5342	6723	434	66215
126	1	POL	6	6699	6142	7232	339	40194
128	1	POL	6	6844.7	6251	7087	290	41068
116	2	POL	7	7045.3	6760	7232	135	49317
118	2	POL	7	7336.1	7050	7596	193	51353
126	2	POL	7	7517.7	7159	7850	219	52624
128	2	POL	7	7543.9	7269	7741	191	52807
116	3	POL	25	5743.4	4506	6796	597	143586
118	3	POL	25	4910.5	2834	6396	1051	122763
126	3	POL	17	6058.4	5451	6832	525	102993
128	3	POL	17	5600.9	4579	6505	694	95215
116	4	POL	25	6868.7	6069	7632	536	171718
118	4	POL	25	6266.8	4870	7632	863	156670
126	4	POL	24	6397.8	5887	7341	717	153546
128	4	POL	24	5680	4870	6723	868	136319
116	5	POL	12	5899.5	4543	7050	866	70794
118	5	POL	12	5823.6	4506	7014	869	69883
126	5	POL	23	6249.5	5524	6469	223	143738
128	5	POL	23	5622	4797	6251	396	129307
116	6	POL	18	7635.9	6723	8250	389	137447
118	6	POL	18	7436.1	6396	8032	428	133850
126	6	POL	22	6313.7	5597	6687	308	138901
128	6	POL	22	5732.1	4833	6542	520	126107
116	9	POL	35	7296.5	5887	7886	394	255378
118	9	POL	35	6589.4	4034	7632	768	230630
126	9	POL	20	6401.6	5887	6832	259	128033

128	9	POL	20	6487	5851	6941	297	129741
116	10	POL	39	7617.1	6723	8432	384	297066
118	10	POL	42	7384.5	6614	8141	342	310147
126	10	POL	20	6977.7	6396	7378	232	139554
128	10	POL	20	7001.4	6324	7269	248	140028
116	15	ELP	7.1	6695.1	6469	6869	72	47671.9
118	15	ELP	7.1	6611.7	6178	7123	284	47199.3
116	16	ELP	6.9	6545.8	6105	6760	200	45447.3
118	16	ELP	7	6399.5	6215	6614	150	44644.3
116	17	POL	21	6901.6	6142	7523	443	144934
118	17	POL	20	6678	6105	7305	317	133559
126	17	POL	24	5708.7	4833	6687	511	137008
128	17	POL	24	5466.4	4688	6287	445	131194
116	18	POL	28	6681.8	5996	7087	333	187091
118	18	POL	29	6567.9	6069	7050	245	190469
126	18	POL	21	5821.7	5015	6505	445	122255
128	18	POL	21	5721.2	4979	6469	468	120146
116	19	ELP	13.8	5160.3	4652	5379	99	71167.3
118	19	ELP	14	5003.5	4361	5379	285	69972.9
116	20	ELP	17.2	5217.9	4615	5524	225	89848.5
118	20	ELP	17.3	5073.7	4579	5379	180	87876.1
116	21	POL	45	5868	4106	6905	750	264062
118	21	POL	45	5516.7	3561	6941	830	248250
126	21	POL	43	6211.9	5415	7123	446	267113
128	21	POL	43	6320.2	5306	7341	508	271770
116	22	POL	36	5977.3 .	5088	6941	550	215182
118	22	POL	33	5943.5	4797	6905	615	196136

126	22	POL	56	5875.2	4652	6723	655	329012
128	22	POL	56	5880.2	4797	6905	688	329294
116	23	POL	49	6855.3	5015	7995	770	335910
118	23	POL	49	6690.7	5015	7705	734	327845
116	24	POL	49	6744.9	5415	7523	719	330502
118	24	POL	49	6811.6	5161	7959	876	333769
116	29	POL	86	5964.3	3888	7378	783	512932
118	29	POL	86	5327.8	3343	7123	1001	458194
126	29	POL	48	6771.8	5415	8032	696	325048
128	29	POL	48	6668.2	5524	7814	616	320072
116	30	POL	87	7610.2	6505	8577	459	662091
118	30	POL	69	7632.4	6215	8468	479	526637
126	30	POL	63	7152.6	6033	7923	520	450611
128	30	POL	63	7007.7	5924	7923	540	441488
116	31	POL	27	6474.2	5051	7087	551	174804
118	31	POL	27	5661.4	3343	6869	1144	152857
126	31	POL	23	6731.3	6251	7487	341	154820
128	31	POL	23	6407.3	5451	7450	548	147369
116	32	POL	28	7281.5	6251	7814	375	203881
118	32	POL	28	6984.2	5597	7596	465	195557
126	32	POL	25	6832.4	5306	7596	580	170809
128	32	POL	25	6458.9	4761	7378	686	161472
116	33	POL	4	8031.8	7341	8359	404	32127
118	33	POL	4	7432	6796	7886	396	29728
116	34	POL	1	7596	999999	7596	0	7596
118	34	POL	3	7329.3	7123	7596	197	21988
116	35	POL	10	7308.3	6941	7741	321	73083

118	35	POL	11	6736.6	6324	7305	313	74103
126	35	POL	10	5981.9	5669	6251	204	59819
128	35	POL	10	5861.7	5524	6105	155	58617
116	36	POL	18	8159	7559	8722	375	146862
118	36	POL	18	7535.1	6760	8323	458	135631
126	36	POL	8	6219.1	5996	6396	122	49753
128	36	POL	8	6037.4	5633	6360	214	48299
154	41	POL	536	5415.3	3598	6760	664	2902581
156	41	POL	571	5057.3	3489	6396	583	2887714
154	42	POL	559	5237.2	4070	6978	651	2927603
156	42	POL	547	4959.4	3670	6614	590	2712784
126	43	POL	11	4314.6	4106	4615	151	47461
128	43	POL	11	4199	3888	4434	175	46189
126	44	POL	12	4373.1	4070	4579	125	52477
128	44	POL	12	4582	4361	4833	136	54984
126	51	POL	60	6483.4	5015	7341	674	389006
128	51	POL	60	6519.2	5197	7414	602	391153
126	52	POL	73	6137.3	4615	7559	802	448026
128	52	POL	73	6032.2	4688	7414	701	440353
154	63	ELP	6.9	3604.4	3489	3779	80	24837.9
156	63	ELP	11.2	3588	3416	3816	80	40138.5
154	64	ELP	6.6	3495.7	3343	3561	36	23171
156	64	ELP	7.1	4047.4	3779	4216	46340	28617
154	95	POL	366	4782.2	2180	6215	754	1750272
156	95	POL	257	4671.2	3162	6069	640	1200502

154	96	POL	259	4984.1	3307	6469	697	1290884
156	96	POL	198	4667.5	2943	6142	765	924156
116	101	POL	2101	5668.3	1780	8541	1390	11909101
118	101	POL	2213	5547.8	1671	8613	1394	12277313
126	101	POL	2113	5548.7	2071	8177	1240	11724385
128	101	POL	2113	5463.7	2326	7959	1223	11544788
116	102	POL	2068	5878	2071	8722	1524	12155659
118	102	POL	2115	5846.1	1962	8831	1510	12364589
126	102	POL	2073	5601.5	2471	8032	1299	11611864
128	102	POL	2073	5500.4	2544	7995	1283	11402232

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slice	volume	type	area	averg	min	max	std	count
122	1	POL	6	8005	7718	8392	306	48030
124	1	POL	12	7680.2	6968	8317	377	92163
134	1	POL	7	7375.3	6594	7942	495	51627
136	1	POL	7	7225.3	6369	7942	550	50577
122	2	POL	6	8129.8	7493	9141	796	48779
124	2	POL	12	8167.3	7868	9216	702	98008
134	2	POL	8	8879.1	8092	9591	488	71033
136	2	POL	8	9103.9	8317	9666	436	72831
122	3	POL	23	7541.8	6893	8092	561	173461
124	3	POL	19	7492.9	7043	8092	430	142365
134	3	POL	15	7802.7	6744	8692	564	117040
136	3	POL	15	7612.8	6294	8692	731	114192
122	4	POL	21	8449.2	6444	9591	920	177433
124	4	POL	21	7953.1	6144	9816	1083	167016
134	4	POL	17	8145.2	7193	8842	489	138469
136	4	POL	17	7968.9	7493	8692	464	135472
122	5	POL	48	8901	6444	10640	1112	427247
124	5	POL	48	8393.6	5170	10041	1284	402893
134	5	POL	17	7012.3	6669	7568	268	119209
136	5	POL	17	6377.8	6144	6893	219	108422
122	6	POL	42	9733.7	7493	11314	900	408816
124	6	POL	42	9517.8	7268	10865	857	399749
134	6	POL	18	8250.5	7568	8992	388	148509
136	6	POL	14	7974.6	7043	8842	665	111645
122	7	POL	11	8664.5	7718	9666	780	95309
124	7	POL	11	8780.4	8092	9591	546	96584

122	8	POL	8	9281.6	9141	9441	95	74253
124	8	POL	8	8869.9	8542	9066	162	70959
122	9	POL	32	8862.7	7793	9891	579	283605
124	9	POL	31	8694.2	7418	9516	561	269520
134	9	POL	15	8477	7868	9141	432	127155
136	9	POL	15	8531.9	7793	9291	498	127978
122	10	POL	40	8661.8	7868	9441	395	346474
124	10	POL	40	8416.5	7043	9441	647	336659
134	10	POL	14	7669.5	7343	8317	372	107373
136	10	POL	14	7664.2	7643	8242	353	107299
122	13	POL	4	6556.2	5844	7268	504	26225
122	14	POL	6	7243.2	6144	8842	917	43459
122	15	ELP	5	8260	7493	9291	46340	41316.9
124	15	ELP	7.1	8419.4	7868	8767	208	59662.9
122	16	ELP	7.1	9332.4	7643	10116	46340	66408.1
124	16	ELP	7.2	9790	8617	10340	46340	70237
122	17	POL	26	9386.4	8392	10790	795	244047
124	17	POL	26	9288.3	8392	10715	770	241496
134	17	POL	18	8862.4	8017	9441	423	159524
136	17	POL	18	7917.3	6968	8692	438	142512
122	18	POL	27	9266.2	7493	10640	719	250187
124	18	POL	14	9221.6	8692	10790	1132	129103
134	18	POL	20	9617.3	8467	10340	456	192346
136	18	POL	19	8971.7	7718	9741	562	170462
122	19	ELP	21.2	6070.1	5395	6818	147	128586.2
124	19	ELP	21.2	6259.6	5694	6594	154	132928.5

122	20	ELP	16.4	6739	6069	7043	64	110425
124	20	ELP	16.3	6372.8	6069	6594	154	104067.4
122	21	POL	42	8625.7	7568	9591	515	362281
124	21	POL	42	8522.3	7418	10041	698	357936
134	21	POL	34	8383.2	7568	9816	576	285030
136	21	POL	34	8383.2	7343	10041	646	285030
122	22	POL	32	8399.1	7568	9591	600	268772
124	22	POL	33	8165	7193	9216	635	269446
134	22	POL	42	9211	7718	10640	600	386863
136	22	POL	42	8750.7	6219	10790	1070	367529
122	23	POL	10	8294.6	7718	9291	540	82946
124	23	POL	10	8204.7	7643	8917	412	82047
122	24	POL	16	7787.9	7043	8467	371	124606
124	24	POL	16	7633.3	7118	8467	427	122133
122	25	POL	9	6768.4	7568	7643	749	60916
124	25	POL	9	6860	6219	7568	525	61740
122	26	POL	6	7817.5	999999	8692	555	46905
124	26	POL	6	7517.8	7568	8092	342	45107
122	29	POL	37	9680.1	8392	10415	472	358162
124	29	POL	35	9772.9	8317	10565	571	342053
134	29	POL	36	9185.1	7942	10265	503	330664
136	29	POL	36	9283	8392	10265	524	334187
122	30	POL	45	10373.6	9441	10940	313	466810
124	30	POL	42	10281.4	9666	10865	322	431820
134	30	POL	56	10136.9	8617	11389	733	567664
136	30	POL	56	9991.2	8392	11240	824	559505
122	31	POL	11	9870.4	9141	10415	376	108574

124	31	POL	11	9700.1	8992	10340	475	106701
134	31	POL	16	7314.9	6294	8092	535	117039
136	31	POL	16	6753	5694	7868	659	108048
122	32	POL	9	9799.1	8917	10790	685	88192
124	32	POL	9	9815.8	8767	10640	604	88342
134	32	POL	20	8669.5	7568	9216	411	173389
136	32	POL	20	8710.7	8167	9141	241	174213
122	33	POL	5	10190.4	9216	10865	560	50952
124	33	POL	5	11419.2	10640	12064	470	57096
122	34	POL	3	7892.7	7643	8317	301	23678
124	34	POL	3	7642.7	7343	8092	323	22928
122	35	POL	19	10427.1	9666	11090	391	198114
124	35	POL	19	11018.6	9591	12064	765	209354
134	35	POL	8	8467	8392	8767	221	67736
136	35	POL	4	8392	8542	8542	259	33568
122	36	POL	11	10027	8917	11165	693	110297
124	36	POL	11	9863.7	8692	11165	785	108501
134	36	POL	8	8747.9	7193	9591	725	69983
136	36	POL	4	8448.2	7868	9066	462	33793
160	41	POL	474	6678.3	4645	8092	592	3165504
162	41	POL	420	6635.1	5020	7793	518	2786727
160	42	POL	398	6770.1	5170	8017	451	2694491
162	42	POL	367	6564.9	4720	7793	490	2409309
134	43	POL	19	5970.5	4645	6893	634	113439
136	43	POL	11	6137.3	4945	7193	715	67510
134	44	POL	19	6739.5	5470	7643	470	128051
136	44	POL	19	6980.2	6444	7643	526	132624

134	51	POL	48	7814.4	6818	8917	491	375093
136	51	POL	39	7719.7	6444	8767	583	301067
134	52	POL	58	7554.9	6219	8392	459	438182
136	52	POL	54	7745.4	6369	8542	468	418250
160	63	ELP	6.7	6414.4	5769	6893	46340	42737.5
162	63	ELP	6.9	6648.4	6144	7043	46340	46073.3
160	64	ELP	5.7	6848.7	6519	7043	46340	38937.7
162	64	ELP	7.5	6955.8	6594	7118	140	51928.1
160	95	POL	192	6413	4196	8617	957	1231288
162	95	POL	122	6574.6	4945	8317	788	802106
160	96	POL	209	6922.8	4720	8917	905	1446864
162	96	POL	158	7135.3	5470	9066	818	1127375
122	101	POL	1834	7249.1	2772	11090	1867	13294855
124	101	POL	1874	7186.1	2772	12064	1878	13466824
134	101	POL	1763	6884	1423	11015	1620	12136507
136	101	POL	1717	6762.9	1273	10265	1580	11611846
122	102	POL	1748	7349	2023	12438	2110	12846053
124	102	POL	1791	7304	1948	12064	2067	13081429
134	102	POL	1790	7085.4	1049	11389	1787	12682901
136	102	POL	1757	7000.4	749	11314	1753	12299730

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slice	volume	type	area	averg	min	max	std	count
78	1	POL	9	5845.6	5653	6066	204	52610
80	1	POL	11	5821.9	4828	6190	375	64041
88	1	POL	12	5697.8	5034	6024	290	68373
90	1	POL	8	5905.8	5323	6231	286	47246
78	2	POL	11	6864.6	6148	7551	481	75511
80	2	POL	11	6741	6107	7551	490	74151
88	2	POL	15	6646.1	5942	7262	423	99691
90	2	POL	8	6700.1	6107	7097	303	53601
78	3	POL	26	5551.3	4786	6148	374	144335
80	3	POL	29	5297.3	4621	6066	423	153621
88	3	POL	19	5116.6	4456	5859	374	97216
90	3	POL	21	4979	4085	5901	630	104560
78	4	POL	21	5525.3	4291	6231	663	116032
80	4	POL	33	6229.5	5571	7262	547	205575
88	4	POL	20	4866.9	3879	6313	1239	97338
90	4	POL	19	5983.3	5364	6850	829	113683
78	5	POL	47	5995.5	5240	7180	596	281787
80	5	POL	15	6057.5	5199	6561	437	90863
88	5	POL	22	5534.9	4333	6891	864	121767
90	5	POL	25	5712.5	4910	7139	732	142812
78	6	POL	40	7055.1	5736	8047	597	282205
80	6	POL	22	7630.1	6809	8129	313	167863
88	6	POL	22	7373.1	6231	8170	514	162208
90	6	POL	23	7362.9	6148	8170	542	169346
78	7	POL	15	4899.2	4415	5199	307	73488
78	8	POL	12	8204.8	7799	8748	307	98457

78	9	POL	41	6636.4	4415	8583	1099	272094
80	9	POL	45	7410	4209	8913	987	333450
88	9	POL	24	6691.7	4993	7510	660	160601
90	9	POL	17	6082.7	3548	7262	1023	103406
78	10	POL	48	7613.3	6355	8253	435	365437
80	10	POL	46	7495.7	6024	8459	571	344804
88	10	POL	27	6895.7	5777	7799	489	186183
90	10	POL	20	6563	6190	7056	233	131261
78	13	POL	7	4480	4333	4621	114	31360
78	14	POL	10	5995.6	5075	6602	498	59956
78	15	ELP	5.7	6357	5364	6767	46340	36337.7
80	15	ELP	6.5	6158.4	5240	6520	146	39942.3
78	16	ELP	4.4	6465.1	5983	6643	46340	28243.3
80	16	ELP	7.4	6457.5	5942	6767	116	47851
78	17	POL	22	5004	3796	6313	585	110089
80	17	POL	23	5649.4	4374	6602	578	129936
88	17	POL	27	5271	4126	6932	824	142316
90	17	POL	24	5649.6	4002	7262	981	135590
78	18	POL	31	6656.7	5653	7675	692	206358
80	18	POL	22	6981.1	5240	7593	747	153585
88	18	POL	22	8599.9	6107	10234	1470	189198
90	18	POL	21	6859.7	4952	8913	1300	144054
78	19	ELP	29.3	5056.3	3466	6190	400	148083.8
80	19	ELP	29	5199.1	3796	6066	566	150830.9
78	20	ELP	30.5	5086.9	3342	5942	411	155108
80	20	ELP	20.3	5282.6	4250	6107	492	107124.4

78	21	POL	45	4638.8	3961	5199	335	208745
80	21	POL	48	4621.4	3548	5653	545	221827
88	21	POL	46	4597.2	3714	5777	500	211470
90	21	POL	44	4692.7	3837	5405	350	206478
78	22	POL	41	6388.8	4745	7139	617	261940
80	22	POL	36	6278.9	5571	6809	271	226042
88	22	POL	58	6415.1	4869	7304	565	372073
90	22	POL	60	6761.8	5405	7469	419	405705
78	23	POL	19	5155.7	4374	5694	382	97959
80	23	POL	58	4669.8	3672	5488	490	270850
78	24	POL	20	5554	5364	5859	235	111079
80	24	POL	52	5522.9	4167	6231	421	287193
78	25	POL	15	4816.6	4250	5405	342	72249
78	26	POL	10	6540.4	999999	7386	652	65404
78	29	POL	52	6726	5323	7840	607	349751
80	29	POL	72	6156.8	3920	7634	838	443293
88	29	POL	46	5742.7	4621	6643	546	264166
90	29	POL	55	5271.2	3631	6643	693	289914
78	30	POL	63	6434.5	5282	7716	512	405374
80	30	POL	79	6623.7	5034	8253	840	523270
88	30	POL	67	6576.3	5323	7510	541	440611
90	30	POL	66	6801.7	5901	7551	435	448910
78	31	POL	17	5920.1	4663	7056	770	100642
80	31	POL	30	6390.4	5158	7015	475	191711
88	31	POL	32	5983.2	4869	6602	398	191461
90	31	POL	20	5719	5034	6396	336	114381

78	32	POL	12	9597.4	9161	9945	261	115169
80	32	POL	31	8324.7	6478	9780	967	258067
88	32	POL	27	7791.2	5983	9697	958	210363
90	32	POL	27	7817.3	5612	9491	1108	211067
78	33	POL	7	6313.3	5818	6767	325	44193
80	33	POL	8	4162.4	3342	4993	559	33299
78	34	POL	3	5281.7	5447	5653	388	15845
80	34	POL	1	6107	999999	6107	0	6107
78	35	POL	20	6571.2	5529	7015	432	131424
80	35	POL	17	6544	5571	7345	523	111248
88	35	POL	19	7110.5	5859	7923	613	135099
90	35	POL	10	7448.3	7015	7799	238	74483
78	36	POL	20	7334.7	6726	7840	372	146694
80	36	POL	14	6631.7	5777	7634	548	92844
88	36	POL	14	6510.7	6685	7056	422	91150
90	36	POL	8	6421.8	6107	6850	410	51374
110	41	POL	373	3746.6	2145	5405	700	1397494
112	41	POL	493	3430.4	1444	5075	739	1691167
110	42	POL	358	4661.6	3260	7015	751	1668868
112	42	POL	478	4342.6	2806	6478	768	2075779
88	43	POL	15	4387.5	4002	4786	246	65813
90	43	POL	13	4177	3961	4415	159	54301
88	44	POL	22	5062.2	4621	5447	287	111369
90	44	POL	12	4824.3	4539	5117	182	57892
88	51	POL	66	4504.5	4044	5075	291	297295
90	51	POL	60	4654.4	3631	5323	448	279263

88	52	POL	77	5799.3	4580	6932	487	446545
90	52	POL	70	5600.6	4167	6437	508	392041
110	63	ELP	12.9	5021.1	4456	5240	93	64868.1
112	63	ELP	12.9	4780.6	3425	5447	418	61755.6
110	64	ELP	8.9	4520	4167	4869	106	40290
112	64	ELP	6	4244.6	4085	4621	123	25506.4
110	95	POL	420	4201.8	2228	5901	860	1764776
112	95	POL	395	4316.8	2599	5529	703	1705155
110	96	POL	478	5226.1	2641	7304	1019	2498068
112	96	POL	445	5226.4	2393	7386	1084	2325745
78	101	POL	2383	4729.4	907	8748	1342	11270059
80	101	POL	2287	4732.8	1072	8913	1337	10823945
88	101	POL	2224	4599.3	949	8212	1217	10228885
90	101	POL	2178	4580.4	1031	8129	1208	9976216
78	102	POL	2195	5528.3	1691	9945	1595	12134559
80	102	POL	2188	5540.4	1444	9945	1580	12122428
88	102	POL	2180	5574.2	1733	10234	1469	12151827
90	102	POL	2184	5551.4	1815	9862	1433	12124223

o45								
slice	volume	type	area	averg	min	max	std	count
110	1	POL	6	6446.3	6016	6764	231	38678
112	1	POL	6	6340.3	5979	6652	212	38042
124	1	POL	11	6182.7	5904	6502	171	68010
126	1	POL	11	6060.5	5904	6129	69	66666
110	2	POL	10	6532.2	6428	6652	64	65322
112	2	POL	10	6666.8	6540	6801	65	66668
124	2	POL	8	6385.5	5942	6764	234	51084
126	2	POL	8	6628.5	6241	6801	171	53028
110	3	POL	26	5562.3	5120	6353	372	144620
112	3	POL	26	5529.2	5007	6428	447	143760
124	3	POL	14	5453.4	4970	6129	319	76347
126	3	POL	13	4547.5	3924	5120	343	59118
110	4	POL	21	5594.7	4821	6241	418	117489
112	4	POL	21	5598.3	4746	6241	443	117565
124	4	POL	19	5335.9	4708	6502	440	101383
126	4	POL	19	5400.9	4821	6428	399	102617
110	5	POL	48	6373.8	4671	8035	847	305944
112	5	POL	48	6174.5	4484	7736	856	296378
124	5	POL	17	4945.9	5232	5568	343	84080
126	5	POL	16	4664.1	4708	5531	498	74626
110	6	POL	40	5787.7	5157	6278	273	231507
112	6	POL	40	5655.9	5120	6315	256	226237
124	6	POL	22	5386.4	4746	5755	273	118500
126	6	POL	22	5117.8	4671	5531	231	112592
110	7	POL	15	6821.3	6278	7325	330	102320
112	7	POL	15	6609.6	6054	7138	323	99144

110	8	POL	10	6835	6241	7100	275	68350
112	8	POL	10	6812.5	6278	7212	302	68125
110	9	POL	35	6171.3	4559	7549	832	215996
112	9	POL	35	6420.2	5007	7810	789	224706
124	9	POL	20	6999.4	6241	7885	692	139987
126	9	POL	20	6866.7	5419	7960	724	137334
110	10	POL	36	7681.6	6502	8446	430	276539
112	10	POL	36	7838.5	7026	8633	400	282186
124	10	POL	18	6984.1	6727	7399	191	125713
126	10	POL	16	6794.4	6353	6951	184	108710
110	13	POL	9	5327.2	4783	6129	418	47945
112	13	POL	9	5252.4	4671	5979	399	47272
110	14	POL	6	5094.7	4821	5493	250	30568
112	14	POL	6	5300.2	4970	5718	265	31801
110	15	ELP	5.6	6761	6278	6988	46340	38147.3
112	15	ELP	5.6	6924.3	6465	7138	46340	39069.1
110	16	ELP	4.3	6046.1	5867	6241	46340	25762.7
112	16	ELP	4.3	6231.1	6129	6315	46340	26548
110	17	POL	20	7337.7	7063	7661	168	146754
112	17	POL	20	7221.7	6913	7586	184	144434
124	17	POL	20	6313.5	5493	6801	375	126271
126	17	POL	15	5956.6	5493	6315	268	89349
110	18	POL	26	6102.8	5007	6988	620	158672
112	18	POL	26	6180.4	4821	7138	675	160691
124	18	POL	20	5781	4933	6353	388	115621
126	18	POL	21	5482.6	4783	5904	257	115134
110	19	ELP	39.2	6194.8	5232	6540	201	243026.9

112	19	ELP	39.2	6410.9	5269	6839	252	251504.8
110	20	ELP	36.6	5805.1	3924	6278	310	212671.5
112	20	ELP	36.6	5817.8	4110	6278	303	213137.6
110	21	POL	38	5950.6	5045	6913	445	226122
112	21	POL	38	5826.7	5120	6801	429	221413
124	21	POL	32	6895.9	6465	7399	259	220668
126	21	POL	32	6816.5	6278	7362	328	218128
110	22	POL	38	6191.6	5605	6689	265	235279
112	22	POL	38	6184.6	5755	6727	209	235015
124	22	POL	51	5900	5120	6727	363	300898
126	22	POL	47	5801.8	5045	6913	421	272683
110	23	POL	16	7630.4	6428	9006	908	122087
112	23	POL	16	7705.2	6577	8819	796	123283
110	24	POL	17	7682.7	7100	8633	504	130606
112	24	POL	17	7654.4	7063	8558	489	130124
110	25	POL	12	4907.7	3998	6614	844	58892
112	25	POL	12	5026.1	4185	6652	789	60313
110	26	POL	8	5824.9	4821	6913	649	46599
112	26	POL	8	5563.5	4596	6689	654	44508
110	29	POL	41	7451.2	6540	8408	492	305500
112	29	POL	41	7565.2	6540	8745	572	310174
124	29	POL	29	7229.2	6166	8184	694	209646
126	29	POL	29	6983.1	6054	8035	694	202509
110	30	POL	44	6627.2	5979	7325	393	291596
112	30	POL	44	6637.4	5867	7325	364	292045
124	30	POL	51	6955.1	5830	8147	695	354712
126	30	POL	63	6788.2	5792	8221	636	427659

110	31	POL	11	7745.9	7437	8072	307	85205
112	31	POL	11	7633.6	7287	8035	349	83970
124	31	POL	18	6093.2	5605	6614	273	109677
126	31	POL	23	4927.9	3961	6091	528	113341
110	32	POL	12	6103.6	6016	6241	73	73243
112	32	POL	12	6119.2	5979	6353	112	73430
124	32	POL	26	5566.6	4409	6203	533	144731
126	32	POL	26	5517.7	4783	5904	311	143461
110	33	POL	6	6402.5	6016	6876	294	38415
112	33	POL	6	6670.3	6278	7100	288	40022
110	34	POL	2	4577.5	999999	4671	93	9155
112	34	POL	2	4690	999999	4858	168	9380
110	35	POL	13	6876.1	6502	7063	155	89389
112	35	POL	13	7131.8	6801	7362	133	92714
124	35	POL	12	5985.3	5269	6577	380	71824
126	35	POL	14	5346.4	4708	5942	346	74850
110	36	POL	11	5353.9	4895	5830	291	58893
112	36	POL	11	5653	5007	6166	365	62183
124	36	POL	12	5477.8	4821	6016	372	65733
126	36	POL	13	4777.5	4559	5157	190	62107
156	41	POL	482	4880.6	3438	5904	461	2352443
158	41	POL	421	4713.8	3475	5605	461	1984496
156	42	POL	502	5107.6	3214	6315	527	2564029
158	42	POL	424	5020.5	3812	5867	390	2128713
124	43	POL	18	5287.6	4895	5792	303	95177
126	43	POL	19	5180.5	4970	5381	111	98430

124	44	POL	17	5062.5	4335	5419	287	86063
126	44	POL	18	4772.7	3812	5232	407	85909
124	51	POL	38	6683.2	5979	7212	311	253961
126	51	POL	44	6524.3	5456	7100	404	287070
124	52	POL	36	7076.3	5568	8109	798	254748
126	52	POL	36	6917.5	5007	8147	997	249030
156	63	ELP	4.4	4617	4559	4671	46340	20188.5
158	63	ELP	4.2	4480.5	4335	4596	46340	18841.4
156	64	ELP	6	4576.1	4372	4746	46340	27587.5
158	64	ELP	6.2	4499.1	4073	4708	46340	27864.6
156	95	POL	176	4519.5	3214	5792	582	795430
158	95	POL	105	4012.6	3214	5007	319	421324
156	96	POL	186	4257.7	3176	4970	458	791935
158	96	POL	82	4089.1	3438	4596	313	335304
110	101	POL	2005	5859	1868	9118	1469	11747322
112	101	POL	2005	5861.1	1831	9343	1445	11751599
124	101	POL	1864	5591.7	1719	8483	1217	10422875
126	101	POL	1853	5403.2	1943	8446	1213	10012102
110	102	POL	1829	5511.4	1980	8782	1370	10080432
112	102	POL	1829	5552.7	1906	8745	1362	10155880
124	102	POL	1782	5428.3	1607	8221	1159	9673211
126	102	POL	1756	5350.6	1756	8259	1152	9395580

o37								
slice	volume	type	area	averg	min	max	std	count
130	1	POL	11	8722.3	7845	9299	423	95945
132	1	POL	11	7953	6919	8594	504	87483
138	1	POL	8	8213.8	7668	8814	441	65710
140	1	POL	8	7574.8	7095	7977	324	60598
130	2	POL	8	8908.1	8682	9123	161	71265
132	2	POL	8	8924.5	8462	9167	220	71396
138	2	POL	7	8965.6	8109	9520	478	62759
140	2	POL	7	8890	8286	9343	371	62230
130	3	POL	27	7573.9	5950	8726	762	204495
132	3	POL	27	7293	5200	8506	961	196911
138	3	POL	16	7409.5	6523	8638	614	118552
140	3	POL	18	7142.1	6082	8462	767	128557
130	4	POL	19	8148.7	7228	9035	604	154825
132	4	POL	19	8023.4	7228	8814	508	152444
138	4	POL	25	7159	6434	8550	843	178975
140	4	POL	25	6972.2	6831	8726	998	174306
130	5	POL	18	7989.2	6434	8594	636	143805
132	5	POL	18	7271.9	5112	8418	1005	130895
138	5	POL	18	6826.2	6390	7228	256	122871
140	5	POL	18	6155.2	5553	6699	380	110794
130	6	POL	18	8412.9	8021	8682	171	151433
132	6	POL	18	8239.1	7801	8462	193	148303
138	6	POL	21	7414.4	6346	8418	594	155703
140	6	POL	21	6843.6	5597	8197	727	143715
130	9	POL	35	8455.6	7272	9079	370	295945
132	9	POL	31	7985.5	6126	8991	658	247549
138	9	POL	27	8105.9	6434	9652	794	218859

140	9	POL	26	7470.1	5421	9079	914	194223
130	10	POL	33	9483.5	8814	10181	440	312956
132	10	POL	32	9200	8550	10093	442	294401
138	10	POL	27	8504.3	7580	9167	404	229617
140	10	POL	27	8414.6	7713	8991	286	227193
130	15	ELP	4.9	9091.1	8770	9387	46340	44405
132	15	ELP	5	9191.5	8858	9431	46340	45613.1
130	16	ELP	6.8	9585	9387	9784	132	64997
132	16	ELP	6.8	9515.6	9167	9784	164	64741.2
130	17	POL	18	8395.7	7668	8726	295	151123
132	17	POL	21	8688.5	8286	8991	212	182459
138	17	POL	26	8146.6	7316	8638	354	211811
140	17	POL	26	7841.3	6919	8726	596	203875
130	18	POL	28	8587.8	7757	9476	514	240457
132	18	POL	26	8670.3	7933	9299	328	225428
138	18	POL	19	7918.9	7448	8726	383	150459
140	18	POL	19	7640.7	7140	8550	416	145173
130	19	ELP	27.1	6731.7	5994	7007	191	182105.4
132	19	ELP	27.3	6337.2	5773	6523	156	172996.1
130	20	ELP	19.2	6428.5	5773	6875	168	123380.6
132	20	ELP	19.6	6324	5641	6743	170	123982.5
130	21	POL	34	6481.1	5156	7713	691	220356
132	21	POL	34	6801.2	5773	8241	680	231241
138	21	POL	49	7325.7	6170	8021	478	358960
140	21	POL	49	7521.9	6478	8330	366	368571
130	22	POL	35	7342.3	6743	8594	430	256981
132	22	POL	35	7200	6567	8550	481	252000

138	22	POL	45	7324.6	6302	8638	577	329608
140	22	POL	45	7232.7	6523	8638	509	325471
130	23	POL	38	8754.1	6875	9520	705	332654
132	23	POL	38	8525.5	6743	9035	569	323969
130	24	POL	49	8946.7	7228	9872	828	438386
132	24	POL	56	8768.8	7448	9520	494	491050
130	29	POL	71	8821.9	6831	10181	816	626355
132	29	POL	76	8511.1	6743	9872	869	646845
138	29	POL	32	8324.1	7492	8991	636	266370
140	29	POL	29	7615.3	5200	8770	1027	220843
130	30	POL	63	8780.1	7624	9608	495	553148
132	30	POL	63	8906.1	7801	9652	447	561085
138	30	POL	54	8820.9	7536	10225	804	476331
140	30	POL	54	8703.4	6963	10313	869	469983
130	31	POL	19	9617	8330	10445	700	182723
132	31	POL	19	9208.8	7404	10710	1155	174967
138	31	POL	29	7955.7	6743	9696	794	230716
140	31	POL	29	6989.2	5333	9035	1050	202686
130	32	POL	28	9985.5	8814	10754	700	279594
132	32	POL	28	9573.1	8374	10401	602	268048
138	32	POL	24	8961.3	8506	9343	244	215071
140	32	POL	24	8779.5	8065	9079	270	210708
130	33	POL	3	8784.7	8726	8858	54	26354
132	33	POL	4	8935.8	8770	9079	114	35743
130	34	POL	2	6632.5	6478	6787	154	13265
132	34	POL	2	6677	6611	6743	66	13354
130	35	POL	4	8803.2	8682	8903	78	35213

132	35	POL	8	8897	8506	9211	243	71176
138	35	POL	10	9219.8	8814	9564	245	92198
140	35	POL	10	8898.2	8682	9079	123	88982
130	36	POL	20	7897.6	7007	8682	571	157953
132	36	POL	20	7948.3	7272	8858	484	158966
138	36	POL	9	9485.4	9299	9652	109	85369
140	36	POL	13	9109.2	8814	9431	201	118419
166	41	POL	410	6331.7	4715	7977	698	2596003
168	41	POL	366	6182.6	4804	7536	582	2262823
166	42	POL	342	6396.5	5288	7668	488	2187608
168	42	POL	358	6125.7	4539	7007	429	2193016
138	43	POL	12	6111.3	5950	6302	115	73336
140	43	POL	9	6292.4	6126	6567	172	56632
138	44	POL	13	6475.1	6170	6787	227	84176
140	44	POL	10	6601.9	6390	6919	207	66019
138	51	POL	54	7719.8	6611	8462	461	416871
140	51	POL	54	7529.7	6346	8462	491	406602
138	52	POL	72	7912.1	6743	8947	510	569671
140	52	POL	78	8007.6	7007	8594	380	624589
166	63	ELP	6.6	5563.9	5112	5817	153	36824
168	63	ELP	7.1	5675.3	5553	5773	46340	40096.3
166	64	ELP	9.8	5419.4	4936	5685	21	53024.5
168	64	ELP	5.1	5467.4	5288	5641	46340	27721.3
166	95	POL	262	6750.8	4892	8286	741	1768715
168	95	POL	227	6428.1	4407	7801	785	1459186

166	96	POL	194	6451.7	4892	7492	546	1251624
168	96	POL	193	6181.5	4407	7272	651	1193039
130	101	POL	1922	7458	3129	10577	1552	14334368
132	101	POL	1948	7315.8	3305	10754	1596	14251207
138	101	POL	1894	7218.8	3349	10445	1387	13672432
140	101	POL	1943	7053.9	3305	10048	1368	13705693
130	102	POL	1978	7533.7	3658	10754	1539	14901742
132	102	POL	2004	7495.5	3481	10401	1462	15020983
138	102	POL	1935	7352.5	3305	10225	1259	14227051
140	102	POL	1994	7273.4	3129	10313	1228	14503083

n39								
slice	volume	type	area	averg	min	max	std	count
58	1	POL	11	8789.9	7108	10045	934	96689
60	1	POL	6	9212.7	8518	10456	861	55276
66	1	POL	8	10632.4	8635	12042	1136	85059
68	1	POL	6	9467.5	8283	11044	967	56805
58	2	POL	8	9589.5	9105	9927	273	76716
60	2	POL	9	9385.8	8635	10104	538	84472
66	2	POL	12	8326.8	7519	9457	516	99921
68	2	POL	8	8201.9	7578	9340	509	65615
58	3	POL	29	9457.4	7578	11337	1082	274265
60	3	POL	30	9291.1	6285	11631	1261	278732
66	3	POL	25	9817	8870	10574	517	245424
68	3	POL	17	9847.9	8106	10691	709	167414
58	4	POL	29	8995.6	7519	10339	664	260872
60	4	POL	26	9288	8459	10397	494	241487
66	4	POL	25	9050.8	8341	10221	545	226270
68	4	POL	26	9622.4	7754	10926	887	250183
58	5	POL	18	10443	9457	11102	442	187974
60	5	POL	22	10101	8694	10867	654	222221
66	5	POL	21	10791.9	10045	11925	1003	226629
68	5	POL	27	10573.7	8459	11690	829	285491
58	6	POL	22	9011.5	7871	10456	657	198254
60	6	POL	25	9384.6	7636	10221	699	234614
66	6	POL	30	8523.5	6873	9634	673	255705
68	6	POL	22	8223.9	7284	9105	568	180925
58	9	POL	40	8420.5	4288	10456	1687	336820
60	9	POL	47	9235	7225	10867	872	434043
66	9	POL	27	8291.3	6873	9516	809	223865

68	9	POL	23	7833.1	6344	9105	726	180161
58	10	POL	42	10510.6	8518	11396	583	441446
60	10	POL	40	9858.4	8048	10867	644	394337
66	10	POL	27	10016.6	8870	11220	561	270448
68	10	POL	20	9824.7	7401	10750	932	196493
58	15	ELP	7.2	9571.8	8224	10162	394	68890.9
60	15	ELP	7.1	9548.3	9046	9751	28	68194.4
58	16	ELP	7.1	8318.2	6873	9751	1236	59423.7
60	16	ELP	12	8619.2	7225	9399	112	103399.3
58	17	POL	23	9186.7	7460	10691	1026	211294
60	17	POL	35	9462.5	6990	11396	1324	331187
66	17	POL	34	7887	6403	9164	829	268157
68	17	POL	24	7247.3	5933	8459	814	173936
58	18	POL	30	7779.3	6344	9692	950	233379
60	18	POL	28	8169.3	6814	10515	1073	228740
66	18	POL	25	7481.4	6403	8870	612	187034
68	18	POL	24	7702.5	6344	10104	1107	184860
58	19	ELP	14.5	9711	9105	10045	211	140853.6
60	19	ELP	17.6	9748.3	9340	10574	333	171088.7
58	20	ELP	19.7	8912.8	6990	10515	567	175630.8
60	20	ELP	21.5	9093.9	8106	9927	381	195467.7
58	21	POL	53	7113.2	5110	9986	1114	376999
60	21	POL	53	7370.3	5522	9516	959	390625
66	21	POL	56	7317.5	3700	9164	1222	409779
68	21	POL	45	8055.5	6461	8929	600	362497
58	22	POL	38	8653.7	7460	10104	622	328840
60	22	POL	51	8592.5	7460	9340	467	438216

66	22	POL	58	8701.9	6403	12218	1273	504710
68	22	POL	63	8280.7	6285	10280	889	521682
58	23	POL	49	8532	7284	10456	707	418066
60	23	POL	81	8577.8	4347	10574	1564	694802
58	24	POL	63	9292.5	7343	10985	1030	585425
60	24	POL	53	9670.3	6814	11337	1481	512526
58	29	POL	81	9312.4	7049	12336	1383	754307
60	29	POL	62	9526.7	6873	12218	1117	590653
66	29	POL	40	9177	6990	11396	1272	367079
68	29	POL	49	9063.1	7049	11220	1002	444090
58	30	POL	78	9118.5	6814	11337	978	711244
60	30	POL	106	9538.4	7166	11690	900	1011066
66	30	POL	56	8826.9	7166	9986	841	494308
68	30	POL	63	8809.4	8048	9927	420	554995
58	31	POL	30	8776	6226	10456	1381	263279
60	31	POL	29	8683.7	6814	10280	1086	251827
66	31	POL	33	8900.4	5639	10515	1121	293712
68	31	POL	25	8574	6285	9810	944	214349
58	32	POL	31	8942.1	6696	10632	962	277204
60	32	POL	32	9018.8	7754	10339	772	288600
66	32	POL	31	7899.8	5110	9692	1045	244893
68	32	POL	36	7786.5	6285	9105	614	280314
58	33	POL	4	12057	11690	12395	250	48228
60	33	POL	1	11337	999999	11337	0	11337
58	34	POL	5	9845.2	8518	11102	1106	49226
60	34	POL	1	8635	999999	8635	0	8635
58	35	POL	10	10832	9457	12042	830	108320

60	35	POL	15	9798.1	8929	11337	859	146971
66	35	POL	10	10232.9	9692	10632	311	102329
68	35	POL	11	9580.4	8753	9927	333	105384
58	36	POL	20	11563.5	10221	12982	795	231269
60	36	POL	16	11377.8	9986	12395	685	182045
66	36	POL	9	9561.9	8694	10045	397	86057
68	36	POL	11	9211.9	8694	9634	361	101331
94	41	POL	589	7398.5	3935	10632	1220	4357717
96	41	POL	580	7162.4	3289	10809	1306	4154183
94	42	POL	642	7668.2	4934	9457	843	4923006
96	42	POL	591	7398.9	4464	9399	946	4372753
66	43	POL	12	9844.2	9869	11455	829	118131
68	43	POL	11	11016.7	9281	14098	1700	121184
66	44	POL	11	9735.1	8811	11044	590	107086
68	44	POL	12	10563.9	9340	11631	737	126767
66	51	POL	55	9165.9	6873	11984	1500	504124
68	51	POL	70	9157.1	7225	11690	1202	640996
66	52	POL	74	8604.8	5463	10691	1149	636757
68	52	POL	73	9675.5	7636	11866	906	706312
94	63	ELP	13.6	6102.6	5404	6696	140	82723.3
96	63	ELP	11.8	6416.8	5522	6873	193	75666.5
94	64	ELP	6.1	6554.7	6168	6814	142	39804.8
96	64	ELP	6.2	6731.2	6579	6931	87	41564.5
94	95	POL	343	6306.5	3407	8341	1046	2163123
96	95	POL	263	6466.1	3935	7519	727	1700593

94	96	POL	300	6394.7	3818	8518	920	1918403
96	96	POL	236	6749.2	4817	8870	829	1592809
58	101	POL	2171	7629.3	1586	13158	2236	16563130
60	101	POL	2251	7636	1997	12571	2159	17188566
66	101	POL	2331	7473.8	1586	13570	2093	17421490
68	101	POL	2201	7473.1	1879	14098	1945	16448269
58	102	POL	2252	7559.5	1351	12982	2349	17024028
60	102	POL	2202	7517.8	1057	12453	2265	16554289
66	102	POL	2305	7495.4	2643	12571	1956	17276896
68	102	POL	2337	7512.7	2761	12865	1851	17557132

n04								
slice	volume	type	area	averg	min	max	std	count
64	1	POL	9	6266.1	6073	6421	143	56395
66	1	POL	12	5850.2	4525	6227	509	70203
74	1	POL	12	6575.7	6034	7040	291	78908
76	1	POL	12	6572.4	6382	6808	123	78869
64	2	POL	10	6517.4	6189	6730	179	65174
66	2	POL	11	5566.4	4216	6227	646	61230
74	2	POL	8	6473.9	6305	6614	86	51791
76	2	POL	8	6710.8	6498	6846	138	53686
64	3	POL	26	6047.3	5415	6305	267	157230
66	3	POL	27	6217.3	4990	6692	430	167867
74	3	POL	16	6369.9	5608	6846	348	101919
76	3	POL	14	6127.9	5454	6614	354	85790
64	4	POL	21	6352.5	5918	6653	226	133403
66	4	POL	33	6245.1	5531	7001	425	206087
74	4	POL	19	6170.4	5260	6808	449	117238
76	4	POL	17	5995.2	5183	6808	465	101919
64	5	POL	52	6789.8	5802	8007	562	353067
66	5	POL	15	7351.8	6189	8123	535	110277
74	5	POL	16	6561	5879	7078	388	104976
76	5	POL	14	5586.2	4873	6111	363	78207
64	6	POL	50	7090	5608	8084	618	354500
66	6	POL	22	7375.5	6111	8316	677	162262
74	6	POL	25	6908.2	6227	7272	288	172706
76	6	POL	22	5977.7	5454	6498	273	131510
64	7	POL	10	6838.6	6266	7543	422	68386
64	8	POL	10	6935.3	6653	7310	230	69353

64	9	POL	35	6913.8	5647	7736	586	241983
66	9	POL	47	7138.6	4564	7775	657	335512
74	9	POL	27	5956.6	4990	6343	308	160827
76	9	POL	25	5642.6	4177	6073	462	141065
64	10	POL	48	6571.5	5686	7659	439	315432
66	10	POL	48	6255.6	5531	7117	289	300268
74	10	POL	24	5577.7	4796	6189	349	133865
76	10	POL	21	5564.3	4873	5957	273	116850
64	13	POL	9	5217.3	4603	5957	432	46956
64	14	POL	6	5157	4796	5492	265	30942
64	15	ELP	5.7	7739.6	6537	8355	46340	43754.6
66	15	ELP	9.6	8545	7852	8896	116	82144.6
64	16	ELP	4.4	8952.9	8858	9090	46340	39001.2
66	16	ELP	7.4	8995.3	8355	9283	123	66480.6
64	17	POL	30	7341.4	6343	7968	453	220242
66	17	POL	21	7231.2	6924	7697	188	151856
74	17	POL	26	6081.6	4873	7117	780	158121
76	17	POL	21	5540.3	4409	7001	911	116346
64	18	POL	22	6832.2	5918	7697	519	150309
66	18	POL	19	7601.7	7233	8123	248	144432
74	18	POL	21	5240	4487	6266	604	110041
76	18	POL	23	5014.8	4255	6034	539	115340
64	19	ELP	38.2	6060.1	4719	6576	318	231606.5
66	19	ELP	28.9	5812.3	5260	6073	204	168016
64	20	ELP	44.3	5240.2	3674	5995	408	232351.1
66	20	ELP	20.1	5508.9	4371	5918	259	110848.4

64	21	POL	53	6006.9	4990	6730	387	318367
66	21	POL	43	5765	4912	6382	261	247897
74	21	POL	44	5366.6	4139	6266	524	236130
76	21	POL	41	5139.6	4139	5841	473	210724
64	22	POL	34	5671	5415	6111	168	192813
66	22	POL	36	5456.9	5028	5802	178	196449
74	22	POL	55	5864.4	5299	6266	252	322540
76	22	POL	54	5723.8	5299	6189	212	309086
64	23	POL	12	7333.1	6343	8510	869	87997
66	23	POL	56	6198.3	5183	7659	536	347105
64	24	POL	20	6749.6	6537	6924	152	134992
66	24	POL	52	6652.9	5957	7040	274	345953
64	25	POL	12	5840.6	5531	6343	369	70087
64	26	POL	8	6038.8	6111	6227	180	48310
64	29	POL	48	7501.4	6189	8780	763	360069
66	29	POL	72	6869.9	4835	8471	928	494634
74	29	POL	46	6008.8	4680	6924	601	276403
76	29	POL	41	5806.5	4757	6653	477	238068
64	30	POL	47	5797.8	4719	6885	457	272495
66	30	POL	78	6111.8	4603	7891	904	476721
74	30	POL	62	6061.3	5338	6730	424	375801
76	30	POL	52	5848.6	5183	6459	374	304127
64	31	POL	17	7931.7	7040	8432	430	134839
66	31	POL	22	7512.8	5492	8626	1117	165282
74	31	POL	32	6846.3	5570	7581	496	219082
76	31	POL	32	5812.7	4448	6730	601	186005

64	32	POL	14	8374.3	7968	8587	177	117240
66	32	POL	27	7955.3	6808	8626	544	214793
74	32	POL	26	6725.9	5841	7310	416	174873
76	32	POL	26	6072.7	5183	6808	449	157889
64	33	POL	5	8099.4	7697	8510	259	40497
66	33	POL	7	8266.7	7736	8626	305	57867
64	34	POL	5	8331.8	8239	8896	402	41659
66	34	POL	1	8007	999999	8007	0	8007
64	35	POL	18	8329.1	8007	8703	224	149924
66	35	POL	17	8719	8045	9167	339	148223
74	35	POL	8	6696.5	6382	6962	179	53572
76	35	POL	8	5976	5724	6189	156	47808
64	36	POL	12	9247.8	9129	9438	108	110974
66	36	POL	14	9023.5	8510	9399	255	126329
74	36	POL	4	6566	6382	6730	123	26264
76	36	POL	6	5692.2	5454	5879	136	34153
84	41	POL	357	4198.8	2630	5028	475	1498961
86	41	POL	261	3989.6	3094	4641	329	1041284
84	42	POL	288	4258.1	3404	4873	319	1226322
86	42	POL	213	4114.8	3055	4719	302	876442
74	43	POL	14	4663.5	4216	5028	226	65289
76	43	POL	14	4354.1	4061	4603	167	60957
74	44	POL	20	4774.8	3906	5260	368	95495
76	44	POL	8	4694.4	4564	4796	92	37555
74	51	POL	52	5927.6	5492	6459	283	308233
76	51	POL	47	5195.3	4293	5841	342	244177

74	52	POL	67	5995.9	5106	6614	351	401722
76	52	POL	66	4993	3520	5918	591	329541
84	95	POL	214	4692.6	3752	5222	363	1004213
86	95	POL	127	4408.4	3674	4912	301	559863
84	96	POL	212	4833.7	3945	5763	428	1024744
86	96	POL	121	4646.5	3790	5222	294	562221
64	101	POL	2174	6109.3	2707	8780	1393	13281592
66	101	POL	2071	6172.7	2939	9167	1330	12783607
74	101	POL	2019	5512.1	3171	7581	895	11128932
76	101	POL	1878	5336.6	2939	7465	890	10022053
64	102	POL	2333	5917.5	2514	9438	1305	13805519
66	102	POL	2354	5778.7	2475	9399	1260	13602970
74	102	POL	2056	5467.7	2939	7504	911	11241583
76	102	POL	1909	5264.8	2785	7310	978	10050547

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slice	volume	type	area	averg	min	max	std	count
62	1	POL	9	6025.9	5662	6232	182	54233
64	1	POL	8	5986.6	5769	6196	162	47893
72	1	POL	11	6338.5	5733	6979	415	69723
74	1	POL	7	6419.9	6196	6766	193	44939
62	2	POL	6	5845.7	5697	6018	127	35074
64	2	POL	8	6053.5	5947	6410	143	48428
72	2	POL	14	6442.7	5840	7015	387	90198
74	2	POL	3	6326.7	6232	6410	73	18980
62	3	POL	26	5059.1	4095	5555	350	131536
64	3	POL	19	5202.5	4700	5626	220	98848
72	3	POL	17	5133.9	4059	6267	756	87276
74	3	POL	16	5096.5	4629	6089	426	81544
62	4	POL	17	5496.2	4914	6410	457	93436
64	4	POL	27	6461	5412	7763	737	174448
72	4	POL	18	5736.8	4522	6873	691	103263
74	4	POL	17	5360.2	4700	6160	450	91123
62	5	POL	49	6260.6	5270	6873	422	306770
64	5	POL	11	5878.6	5092	6481	449	64665
72	5	POL	20	4575.5	3774	5199	414	91511
74	5	POL	18	3885.2	3133	4487	385	69933
62	6	POL	46	6891.2	5448	7763	574	316994
64	6	POL	12	6495.6	5377	7264	523	77947
72	6	POL	18	5042.5	4415	5519	350	90765
74	6	POL	18	4953.5	4629	5448	213	89163
62	7	POL	15	6003.7	5270	6516	412	90055
62	8	POL	10	6402.5	6267	6552	95	64025

62	9	POL	35	6270.2	5519	7300	455	219458
64	9	POL	43	5818.2	4914	6552	308	250184
72	9	POL	15	4921.1	4273	5306	302	73816
74	9	POL	17	4438.4	3026	5306	585	75453
62	10	POL	41	6300.2	5519	6801	328	258310
64	10	POL	39	6135.7	5306	6801	362	239291
72	10	POL	17	5841.9	5341	6232	240	99312
74	10	POL	10	5601.1	5128	5982	275	56011
62	13	POL	7	4827.6	4166	5484	400	33793
62	14	POL	9	4708.1	4024	5484	447	42373
62	15	ELP	5.6	5959.2	5056	6303	46340	33181.5
64	15	ELP	6.6	6244	5733	6410	18	41370.9
62	16	ELP	4.3	5943.2	5697	6267	46340	25515.4
64	16	ELP	7.2	6298.9	5662	6588	160	45226.8
62	17	POL	11	6173.3	5306	6730	459	67906
64	17	POL	18	6168.3	5128	6730	394	111029
72	17	POL	23	4865.9	4166	5840	605	111915
74	17	POL	23	5315	4166	6588	877	122244
62	18	POL	10	6153.1	5128	7193	714	61531
64	18	POL	29	6624.4	5804	7300	387	192109
72	18	POL	19	5577.4	4415	6338	705	105971
74	18	POL	19	5358.2	4059	6303	835	101806
62	19	ELP	22	5363.2	4130	5840	332	118221.4
64	19	ELP	25.7	4738.1	3561	5092	265	121650.1
62	20	ELP	20.1	5097	4344	5270	55	102230.8
64	20	ELP	19.5	4814.4	3952	5306	268	93791.4

62	21	POL	41	5275.2	4629	6053	343	216285
64	21	POL	40	5260.2	3952	5875	479	210409
72	21	POL	40	5134.6	4166	5769	369	205385
74	21	POL	40	4529.3	3810	5270	329	181171
62	22	POL	33	5887.3	5484	6125	192	194281
64	22	POL	30	5636.9	5092	5947	220	169106
72	22	POL	43	5709	4950	6267	290	245485
74	22	POL	41	5079	4629	5412	191	208239
62	23	POL	16	6447.3	6196	6837	267	103157
64	23	POL	52	6183.6	5377	7371	504	321547
62	24	POL	19	6851.9	6766	7371	440	130186
64	24	POL	46	6641.1	5840	7336	462	305489
62	25	POL	12	5453.9	5056	5982	267	65447
62	26	POL	8	5697.5	5128	6232	378	45580
62	29	POL	48	5952.6	5270	6481	318	285724
64	29	POL	62	5760	4593	6837	616	357117
72	29	POL	20	5213.1	4451	5804	370	104262
74	29	POL	33	5427.6	4593	6018	406	179111
62	30	POL	40	5898.6	5306	7371	527	235946
64	30	POL	69	6137.6	4593	7870	993	423495
72	30	POL	46	6299.7	5555	7086	351	289786
74	30	POL	44	5915	5341	6516	272	260262
62	31	POL	15	6412.1	5697	7336	556	96181
64	31	POL	24	6571.4	5377	7478	661	157714
72	31	POL	21	5107.2	4095	5947	488	107252
74	31	POL	20	4240.9	3632	4700	326	84817

62	32	POL	12	7665	6730	8155	394	91980
64	32	POL	21	7269.3	6089	8226	570	152656
72	32	POL	20	5642.2	5092	6196	333	112845
74	32	POL	18	4686.3	4237	5448	304	84353
62	33	POL	5	6395.4	5911	6730	267	31977
64	33	POL	4	6080.2	5947	6267	126	24321
62	34	POL	3	5863.7	5591	6267	291	17591
64	34	POL	1	5519	999999	5519	0	5519
62	35	POL	19	6851.9	6338	7229	262	130187
64	35	POL	14	6722.5	6338	7086	202	94115
72	35	POL	12	6029.9	5769	6303	172	72359
74	35	POL	5	5960.8	5840	6089	97	29804
62	36	POL	10	6844	6338	7264	295	68440
64	36	POL	14	6837.1	6196	7549	420	95719
72	36	POL	8	6057.8	5804	6338	190	48462
74	36	POL	7	6643.6	6196	6908	244	46505
82	41	POL	438	3783.7	2884	4950	381	1657247
84	41	POL	400	3653	2813	4522	303	1461199
82	42	POL	414	3896.3	3133	4665	354	1613052
84	42	POL	366	3774.4	2742	4451	321	1381440
72	43	POL	14	3977.7	3774	4130	108	55688
74	43	POL	11	4052.7	3774	4273	144	44580
72	44	POL	15	4246.9	4202	4665	288	63703
74	44	POL	10	4283.7	3952	4487	184	42837
72	51	POL	53	4915.9	4415	5697	302	260543
74	51	POL	42	4506	4024	5377	355	189254

72	52	POL	52	4839.9	3917	5270	306	251677
74	52	POL	62	4420.5	3881	4878	274	274073
82	63	ELP	12.4	4338.6	3632	4771	206	53672.9
84	63	ELP	7.5	3728.1	3561	3810	63	28059.2
82	64	ELP	7	4590.7	4237	4878	126	32045.2
84	64	ELP	8.1	3634.8	3383	3881	89	29531.7
82	95	POL	142	4332.9	3276	4985	393	615266
84	95	POL	88	3759	2955	4558	374	330796
82	96	POL	171	4251.9	3098	5056	428	727073
84	96	POL	90	3874.1	3205	4415	336	348665
62	101	POL	1936	5003	1744	7585	1252	9685724
64	101	POL	1986	5021.1	2314	7549	1118	9971844
72	101	POL	1818	4717.8	2243	7122	967	8576981
74	101	POL	1683	4571.5	2243	7051	955	7693769
62	102	POL	1859	5208.9	2065	8261	1404	9683289
64	102	POL	1971	5243.9	2136	8404	1306	10335743
72	102	POL	1822	5008.8	2777	7086	947	9126021
74	102	POL	1698	4723.6	2172	7122	958	8020709

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slice	volume	type	area	averg	min	max	std	count
70	1	POL	9	8573.8	8145	9023	292	77164.4
72	1	POL	9	8801.4	8145	9072	243	79213
80	1	POL	12	6593	4975	8145	926	79115.4
82	1	POL	9	7728.4	6194	8487	731	69555.2
84	1	POL	9	8107.7	6877	8682	536	72969.6
70	2	POL	10	8257.9	7853	8584	195	82578.6
72	2	POL	4	8743.2	8487	8974	146	34972.7
80	2	POL	15	6617.3	5121	8438	1024	99260.1
82	2	POL	5	8662.7	7999	9169	390	43313.5
84	2	POL	5	8818.8	8096	9218	390	44093.9
70	3	POL	26	7811.7	6438	8926	829	203105.2
72	3	POL	29	7817.7	6584	8974	634	226713
80	3	POL	19	7876.1	7414	9218	682	149646.2
82	3	POL	19	8207.3	7511	9121	438	155938.4
84	3	POL	19	8143.1	7414	9121	487	154719
70	4	POL	16	7767.7	6243	8974	682	124282.4
72	4	POL	27	9321.7	7462	10925	975	251686.6
80	4	POL	25	7993.5	6975	9706	634	199837.2
82	4	POL	17	7606.3	6926	8779	682	129306.4
84	4	POL	17	7603.4	6097	8877	731	129257.6
70	5	POL	57	8969.7	6194	10877	877	511275
72	5	POL	12	9243.1	8730	9999	438	110917.7
80	5	POL	25	6610.2	2536	10047	2097	165254.7
82	5	POL	15	10249.6	9657	10779	438	153743.4
84	5	POL	15	10171.5	9413	10584	341	152572.8
70	6	POL	50	9978.7	7755	10828	682	498934.5
72	6	POL	22	9325.2	7072	10633	1024	205153.8
80	6	POL	25	9848.9	9023	10730	390	246223.6

82	6	POL	22	9943.7	8926	10974	536	218762.5
84	6	POL	22	9504.8	8389	10486	487	209104.7
70	7	POL	15	7310	5365	8828	1073	109649.5
70	8	POL	8	10297.9	9560	10730	341	82383.5
70	9	POL	41	8766.7	6389	10291	1073	359433.8
72	9	POL	40	8462.7	4389	10145	1463	338508.7
80	9	POL	31	4454.4	2243	7609	1219	138086.2
82	9	POL	28	7807.7	5999	8633	585	218616.1
84	9	POL	29	7372	5219	8048	682	213787.3
70	10	POL	48	9950.4	8584	10779	390	477619.2
72	10	POL	37	9656.4	8633	10243	292	357287.7
80	10	POL	27	8617.2	5560	10438	1219	232663.8
82	10	POL	23	8406.5	7901	8828	243	193349.9
84	10	POL	25	8697.8	8243	9462	341	217445.5
70	13	POL	7	6661.5	6048	7560	487	46630.3
70	14	POL	7	6257.3	4926	7218	731	43801.3
70	15	ELP	5.7	8895.1	7950	9316	2260348	50310.9
72	15	ELP	8.1	8810.7	7560	9560	168	71646.2
70	16	ELP	4.4	9432.3	9218	9608	2260348	41080.7
72	16	ELP	7.3	9641.3	9121	9999	68	70486.8
70	17	POL	27	9842	8682	10730	487	265734.2
72	17	POL	23	9931.3	9121	10389	292	228420.2
80	17	POL	24	8808.2	8145	10243	536	211397.2
82	17	POL	19	8276.6	7267	10145	877	157255.3
84	17	POL	21	8487.1	6633	10194	1073	178229.2
70	18	POL	31	9266	7950	10730	731	287244.6

72	18	POL	19	9321.4	7511	10096	682	177107.4
80	18	POL	25	8734.9	8145	9365	292	218372.3
82	18	POL	19	8030.1	6926	9365	829	152572.8
84	18	POL	23	7626.1	6389	8730	780	175400.2
70	19	ELP	22.4	5971.9	5365	6292	84	133951.2
72	19	ELP	28.2	5865.8	5316	6243	109	165423.2
70	20	ELP	27.7	6004	5462	6487	312	166176
72	20	ELP	19.3	5614.9	5267	6194	129	108169.3
70	21	POL	50	6828.7	5414	7804	536	341435.3
72	21	POL	48	6843.9	5219	8828	780	328509.5
80	21	POL	53	4820.6	1902	8096	1512	255491.2
82	21	POL	46	7160.6	5853	8730	585	329387.5
84	21	POL	52	6817.4	4877	8340	731	354507.4
70	22	POL	41	6687.1	6097	7072	243	274172.5
72	22	POL	36	6525.2	5950	7023	292	234907.5
80	22	POL	62	3941.5	1121	6828	1463	244370.1
82	22	POL	52	7350.2	6584	7999	341	382212.4
84	22	POL	57	7294.2	5804	7999	487	415770.6
70	23	POL	19	8076.4	7755	8779	195	153450.8
72	23	POL	58	7631.8	6633	8389	438	442646.5
70	24	POL	19	8861.9	7804	9804	634	168376.4
72	24	POL	42	7926.2	5999	9511	1073	332899.4
70	25	POL	15	8288.7	7609	8730	341	124331.2
70	26	POL	10	7721.3	7267	8243	341	77213.2
70	29	POL	47	9151.3	7804	10340	682	430110.9
72	29	POL	72	8867.2	7218	10974	877	638435.2
80	29	POL	49	5251.9	2780	8633	1414	257344.7

82	29	POL	34	8435.5	7121	9365	634	286805.7
84	29	POL	41	7550.8	6340	9023	829	309584.2
70	30	POL	54	8715.6	7218	9999	682	470644.2
72	30	POL	81	9596.3	7804	11072	877	777301.9
80	30	POL	70	7487.2	3609	10730	1755	524103.2
82	30	POL	51	9637.7	8438	11072	731	491520.5
84	30	POL	67	9355.6	7755	10486	682	626826.4
70	31	POL	14	9950.4	9267	11023	585	139305.6
72	31	POL	30	9635	7218	11950	1268	289049.4
80	31	POL	32	6397.3	3707	9413	1463	204714.8
82	31	POL	20	9238.3	8096	9804	390	184765.3
84	31	POL	20	8921.2	7755	9413	390	178424.3
70	32	POL	8	10377.2	9950	11121	390	83017.6
72	32	POL	31	9926.8	7853	11511	1073	307730.8
80	32	POL	27	8026.4	4731	9608	1219	216713.9
82	32	POL	23	9483.8	8584	10633	536	218128.4
84	32	POL	25	9066.6	7657	10389	585	226664.3
70	33	POL	9	9782.4	8828	10340	487	88041.5
72	33	POL	4	9987	9462	10438	341	39947.9
70	34	POL	5	8682.2	8194	9218	390	43411.1
72	34	POL	2	9243.1	8779	9706	438	18486.3
70	35	POL	18	9928.7	8974	10535	341	178717
72	35	POL	14	10093.2	9413	10535	341	141305.4
80	35	POL	19	9221.3	8048	9804	487	175205.1
82	35	POL	17	8989.2	8633	9511	292	152816.7
84	35	POL	17	8619.1	7853	9365	438	146524.5
70	36	POL	11	10447	9560	10925	390	114917.4
72	36	POL	20	10260.1	8633	11316	829	205202.6
80	36	POL	15	9982.9	9365	10438	292	149743.8

82	36	POL	13	8989.9	7657	9804	585	116868.4
84	36	POL	17	8794.1	7365	9608	634	149499.9
106	41	POL	472	5422.2	3707	6389	438	2559301.5
108	41	POL	471	5316.2	3755	6194	438	2503940.2
106	42	POL	422	5472.7	3999	6438	438	2309468.2
108	42	POL	368	5369.9	4048	6194	390	1976130
80	43	POL	32	5533.1	4828	5999	292	177058.6
82	43	POL	20	5658.1	5121	6145	292	113161.4
84	43	POL	17	5474.4	4731	5999	341	93065.5
80	44	POL	38	5216.5	4194	5804	438	198227.6
82	44	POL	25	5043.5	4487	5414	195	126087.2
84	44	POL	22	5221.3	4926	5511	97	114868.6
80	51	POL	66	6088.9	1951	7657	1268	401869.3
82	51	POL	63	7192.6	6487	7853	341	453133.4
84	51	POL	66	6927	4682	7560	682	457181.9
80	52	POL	75	4592.8	1268	8194	2341	344459.4
82	52	POL	63	7758.6	6682	8584	390	488789
84	52	POL	67	7306.3	5072	8243	731	489520.7
106	63	ELP	13.7	4776.1	4584	4926	0	65585.2
108	63	ELP	8.4	4842.6	4633	5072	146	40791.9
106	64	ELP	8.5	4605.6	4389	5023	97	39222
108	64	ELP	12.9	4940.3	4731	5219	146	63777.9
106	95	POL	442	5805.3	3560	7950	975	2565935
108	95	POL	392	5899.3	3170	7755	926	2312541.2
106	96	POL	449	5937	3853	7950	926	2665731.8
108	96	POL	371	6130.5	4292	8096	877	2274398

70	101	POL	2256	7408.9	2341	11901	1853	16714575
72	101	POL	2204	7383.2	2633	12096	1853	16272660
80	101	POL	2353	6624.8	243	11072	1999	15588082
82	101	POL	2019	7013.7	3316	10828	1512	14160590
84	101	POL	2161	6795.6	2682	10828	1512	14685279
70	102	POL	2057	7649.1	2243	11316	1853	15734217
72	102	POL	2040	7621	2829	11511	1853	15546817
80	102	POL	2502	6817.4	731	11706	2048	17057034
82	102	POL	1933	7309.5	2975	11267	1658	14129276
84	102	POL	2032	7168	3463	10974	1560	14565386

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slice	volume	type	area	averg	min	max	std	count
66	1	POL	12	8133.8	7831	8771	268	97606.2
68	1	POL	12	7977.2	7787	8413	179	95726.5
82	1	POL	8	7831.8	6847	8368	447	62654.1
84	1	POL	8	7658.3	6712	8368	447	61266.8
66	2	POL	8	8463.9	8189	8771	179	67711.2
68	2	POL	8	8631.7	8189	8950	223	69053.8
82	2	POL	8	8262.5	7697	8592	223	66100.1
84	2	POL	8	8189.8	7921	8458	134	65518.3
66	3	POL	21	6955.9	4967	8055	939	146073.6
68	3	POL	21	6900.5	5101	7876	805	144910
82	3	POL	16	7373	6847	7876	313	117968.8
84	3	POL	16	7540.9	7205	8324	402	120653.9
66	4	POL	17	7694.9	8145	8592	805	130812.8
68	4	POL	17	7776.5	6757	8547	760	132200.2
82	4	POL	18	7789.5	7384	8279	358	140211
84	4	POL	18	7769.6	7697	8368	581	139852.9
66	5	POL	43	7895.3	5817	8861	626	339495.8
68	5	POL	43	8032.6	6086	8950	581	345403.2
82	5	POL	20	8187.6	6981	8861	537	163751
84	5	POL	20	8028.7	6623	8861	626	160573.5
66	6	POL	42	8416.7	6847	10203	939	353503.5
68	6	POL	42	8309.1	6623	9935	850	348983.4
82	6	POL	18	8244.5	7473	8816	358	148400.8
84	6	POL	18	8085.4	7428	8637	313	145536.6
66	7	POL	15	7354.4	5549	8905	939	110316
68	7	POL	15	6903.9	5415	8503	939	103558.3

66	8	POL	10	9398.1	9040	9845	268	93981.2
68	8	POL	10	8910.3	8234	9577	447	89103.1
66	9	POL	39	7344.1	5504	9174	850	286418.8
68	9	POL	39	7124.9	5236	8905	805	277871
82	9	POL	18	7431.5	5370	8279	671	133766.5
84	9	POL	16	7498.9	5459	8413	760	119982.6
66	10	POL	37	8096.7	7070	9442	581	299576.2
68	10	POL	37	7960	6623	9398	581	294519.1
82	10	POL	15	7076.9	6757	7518	179	106154
84	10	POL	10	6896.4	6623	7115	134	68964.3
66	13	POL	9	5907.4	5325	6489	358	53166.5
68	13	POL	9	5872.6	5325	6489	313	52853.2
66	14	POL	7	7505.7	7026	8055	358	52540
68	14	POL	7	7403.4	6712	8189	537	51823.9
66	15	ELP	7.1	8040.6	7652	8413	63	57420.8
68	15	ELP	7.1	8478.8	7966	8771	44	60549.7
66	16	ELP	4.3	8365.8	8100	8547	2073893	36109.7
68	16	ELP	4.3	8359	7966	8503	2073893	36080.6
66	17	POL	23	8141.1	6981	8816	537	187246.3
68	17	POL	23	8440.8	6802	9398	760	194138.2
82	17	POL	21	7682.6	7294	8368	268	161334.4
84	17	POL	14	7371.4	6757	8100	402	103200.3
66	18	POL	15	7590.1	7742	8458	850	113851.5
68	18	POL	15	7813.9	7518	9129	895	117208
82	18	POL	20	7894.4	7070	8861	626	157888.4
84	18	POL	14	7425.8	6802	8413	537	103961.1

66	19	ELP	17	6160	5325	6891	492	104638
68	19	ELP	17	6257.8	5012	7070	616	106299.3
66	20	ELP	12.7	6261.1	5638	6489	141	79447.9
68	20	ELP	12.7	6258.8	5907	6444	63	79419
66	21	POL	43	6916.9	5325	7742	581	297428
68	21	POL	43	6864.9	5459	7921	537	295190.4
82	21	POL	36	7196.5	5101	8682	895	259074.8
84	21	POL	36	7129.4	5012	8368	850	256658.1
66	22	POL	31	7264.4	6220	7921	358	225196.8
68	22	POL	31	7261.5	6354	7608	268	225107.3
82	22	POL	47	7541.3	6712	8368	358	354443.3
84	22	POL	47	7808.9	6712	8682	402	367018.9
66	23	POL	18	8759.1	8458	9040	179	157664.6
68	23	POL	18	8711.9	8413	9129	223	156814.3
66	24	POL	19	8639.7	7428	9621	626	164153.8
68	24	POL	19	8809.3	7697	9711	537	167376
66	25	POL	15	9210.2	8682	9756	313	138152.3
68	25	POL	15	9066.9	8816	9263	134	136004.2
66	26	POL	10	8887.9	8592	9487	358	88879.3
68	26	POL	10	8749.2	8324	9263	358	87492
66	29	POL	45	7382.2	5415	9084	850	332201.1
68	29	POL	45	7362.4	5504	8995	760	331306
82	29	POL	38	7221.7	5907	8861	716	274425
84	29	POL	39	7617.2	6131	8682	626	297070
66	30	POL	50	8163.8	6533	9084	492	408191.6
68	30	POL	50	8087.8	6489	9174	581	404387.6
82	30	POL	46	7790.9	6891	8905	492	358381.6

84	30	POL	46	7978.7	7249	8995	358	367018.9
66	31	POL	12	8458.3	8100	9129	402	101499.7
68	31	POL	12	8380	8100	9040	358	100559.9
82	31	POL	23	7263.6	5862	8503	760	167062.7
84	31	POL	23	7078.7	5549	8413	805	162811.2
66	32	POL	9	9537.3	9353	9756	89	85836.1
68	32	POL	9	9522.4	9398	9711	89	85701.9
82	32	POL	27	8524.6	7339	9174	492	230164.4
84	32	POL	27	8708.6	8055	9219	268	235132
66	33	POL	6	7593.1	7294	8145	268	45558.5
68	33	POL	6	8465.8	8189	8637	134	50794.6
66	34	POL	2	6712.9	6623	6802	89	13425.9
68	34	POL	2	7496.1	7384	7608	89	14992.2
66	35	POL	13	7659.6	7160	8324	313	99575.3
68	35	POL	13	8523.7	8010	8950	223	110808.3
82	35	POL	6	8786.5	8682	8950	89	52719
84	35	POL	6	8659.7	8682	8861	179	51958.2
66	36	POL	11	7107.6	6802	7473	179	78183.4
68	36	POL	11	7884.7	7563	8324	223	86731.2
82	36	POL	10	8337.5	7518	8816	447	83374.7
84	36	POL	10	8158.5	7428	8682	358	81584.6
104	41	POL	397	4912.5	2729	6220	581	1950243.6
106	41	POL	371	4970.7	2998	6265	581	1844134.4
104	42	POL	380	5067.6	3714	6310	447	1925674.2
106	42	POL	347	4994.5	3848	6086	402	1733102.4
82	43	POL	13	6038.2	5504	6444	268	78496.7
84	43	POL	11	5976.6	5415	6265	223	65742.1

82	44	POL	12	6489.2	6041	6891	268	77870.1
84	44	POL	12	6168.4	5370	7070	492	74021.4
82	51	POL	47	7267.1	5057	8234	760	341554.4
84	51	POL	47	7003.4	4743	7742	626	329157.9
82	52	POL	65	7895.8	5638	9040	716	513226.7
84	52	POL	62	7102	6131	8324	537	440324.2
104	63	ELP	11.6	4519.2	4385	4609	0	52426.6
106	63	ELP	7.1	4426.4	4296	4520	44	31254.8
104	64	ELP	10.5	4757	4385	4878	0	50126.1
106	64	ELP	7.5	4926.1	4788	5146	109	37114.6
104	95	POL	319	5474	3087	6668	760	1746215
106	95	POL	250	5417.4	3356	6578	716	1354358.2
104	96	POL	335	5463.5	3177	6981	805	1830261
106	96	POL	262	5397.7	2953	6578	716	1414192.9
66	101	POL	2009	6795.6	3043	9800	1476	13652287
68	101	POL	2009	6850.5	3222	9487	1432	13762693
82	101	POL	1946	6694.2	2908	9263	1297	13026865
84	101	POL	1841	6706.8	3669	9040	1118	12347292
66	102	POL	1920	7091.8	3266	10427	1611	13616216
68	102	POL	1920	7119	3222	10472	1566	13668488
82	102	POL	1912	6948.8	3535	9800	1208	13286074
84	102	POL	1789	6923.1	4162	9577	1118	12385511

r03								
slice	volume	type	area	averg	min	max	std	count
72	1	POL	11	9083.8	7953	9919	639	99921.6
74	1	POL	8	9153.4	8502	9827	548	73227.1
84	1	POL	8	8804.9	8044	9370	411	70438.8
86	1	POL	8	8639.2	8044	9004	319	69113.2
100	1	POL	466	5915	3473	8090	1188	2756392.5
72	2	POL	8	9044.8	8456	9370	274	72358.6
74	2	POL	8	9387.7	9187	9599	137	75101.2
84	2	POL	8	9381.9	8730	9690	365	75055.5
86	2	POL	8	9250.5	8913	9599	182	74004.2
100	2	POL	569	5810.8	3199	7724	1051	3306372.8
72	3	POL	29	7918.8	6490	9096	548	229646
74	3	POL	29	7688.7	5622	8776	777	222972.4
84	3	POL	16	8013.5	6307	9553	868	128216
86	3	POL	18	7605.6	5805	9370	1005	136900.9
100	3	POL	418	5646.8	3793	7222	777	2360362.8
72	4	POL	25	7725	6627	8547	594	193123.9
74	4	POL	25	7818.2	6765	8776	639	195455.1
84	4	POL	25	7554.9	5850	8959	822	188872.9
86	4	POL	25	6977.1	6399	9096	1188	174428.6
100	4	POL	362	5554.5	4251	6719	548	2010728.5
72	5	POL	18	8598.5	7039	9370	594	154773.4
74	5	POL	18	8395.4	7130	9233	548	151116.6
84	5	POL	21	6308	5210	7222	548	132467
86	5	POL	21	4960.6	3885	6033	548	104172.6
100	5	ELP	13.9	4593.6	4296	4799	45	64050.4
72	6	POL	22	8730.6	7176	9187	457	192072.6
74	6	POL	22	8776.3	7679	9141	319	193078.2
84	6	POL	25	6836.4	6353	7587	274	170909

86	6	POL	25	5860	5348	7404	457	146499.9
100	6	ELP	8.1	4158.6	3885	4342	45	33580.3
72	9	POL	34	7906.5	6033	9736	777	268819.3
74	9	POL	31	7865	5576	9324	731	243816.1
84	9	POL	29	7283.6	5256	8273	777	211225
86	9	POL	25	7536.6	6262	8044	411	188415.8
72	10	POL	42	8071	7176	9187	411	338983.9
74	10	POL	37	8137.6	7313	8730	319	301090.5
84	10	POL	27	8618.8	6993	9233	457	232708.6
86	10	POL	25	8295.4	5668	9461	731	207385.4
72	15	ELP	7.1	9227.9	8593	9644	296	65742.3
74	15	ELP	7.1	8031.6	7085	9370	570	57018.8
72	16	ELP	7	8640	7359	9644	616	60095.7
74	16	ELP	6.9	8252	6765	9416	594	56696.4
72	17	POL	23	7490.4	6810	8182	228	172280.2
74	17	POL	23	6969.8	6262	7679	319	160304.3
84	17	POL	26	6439.8	5439	7496	594	167435
86	17	POL	26	5715.5	5028	6536	411	148602.6
72	18	POL	29	7215.8	5987	8502	639	209259.5
74	18	POL	28	6918.5	6033	8639	548	193718.1
84	18	POL	22	6168.7	5576	7313	411	135712.4
86	18	POL	22	6135.5	5028	7862	685	134981
72	19	ELP	13.9	5019.8	4479	5576	164	69711.4
74	19	ELP	13.6	4686.1	4342	5165	164	63595.6
72	20	ELP	17.3	4792.3	4113	5393	351	82733.5
74	20	ELP	13.1	4987.1	4296	5896	463	65159.1
72	21	POL	44	6537.5	4708	7862	639	287651.8

74	21	POL	40	6770.8	5576	8136	639	270830.6
84	21	POL	53	6113.9	4433	7633	822	324036.8
86	21	POL	51	6368	5302	7770	594	324768.2
72	22	POL	38	7295.5	6216	8364	594	277230
74	22	POL	33	7496.4	6307	8547	914	247381.5
84	22	POL	53	7047.9	5942	7953	548	373540.5
86	22	POL	49	7112.1	6353	7999	411	348491.5
72	23	POL	49	8552.4	6765	9233	594	419067.5
74	23	POL	40	8904.3	7770	9461	319	356170.8
72	24	POL	52	8692.8	7450	9827	594	452024.2
74	24	POL	49	8818.3	7085	9690	594	432094.8
72	29	POL	75	7955.9	5393	9919	1005	596695.8
74	29	POL	75	7959.6	5530	9736	959	596970
84	29	POL	43	6801.2	4753	8182	731	292451.3
86	29	POL	33	7252.6	6399	8364	594	239336.5
72	30	POL	70	7747.2	6170	9599	731	542301.1
74	30	POL	70	7805.9	6445	10421	1142	546415
84	30	POL	62	7483.1	6353	9644	868	463954.5
86	30	POL	52	7441	6399	9507	731	386933.5
72	31	POL	27	9050.5	7130	10010	777	244364.6
74	31	POL	27	8964.2	7039	9919	868	242033.4
84	31	POL	32	7189.3	5576	8821	959	230057.4
86	31	POL	29	6750.9	5210	8136	1005	195775.1
72	32	POL	31	10010.4	8639	11153	777	310323.8
74	32	POL	31	10128.4	8867	11473	731	313980.6
84	32	POL	24	7991.6	6810	9141	685	191798.3
86	32	POL	22	7887	7496	8730	502	173514.4
72	33	POL	4	9359.1	8913	9919	319	37436.3

74	33	POL	4	7804.9	7039	8456	502	31219.8
72	34	POL	2	9004.8	8547	9461	457	18009.7
74	34	POL	2	6993.6	6810	7176	182	13987.2
72	35	POL	10	9260.8	7816	10467	868	92608.1
74	35	POL	8	7079.3	6125	8182	685	56634.4
84	35	POL	12	7595.4	6993	7862	228	91145.3
86	35	POL	7	7725	7313	7953	182	54074.7
72	36	POL	20	10140.7	8821	10924	594	202814.4
74	36	POL	20	9265.4	7633	10696	914	185307.5
84	36	POL	9	7552.3	7404	7862	137	67970.5
86	36	POL	9	7603.1	7130	8273	319	68427.6
102	41	POL	415	5340.8	2971	6856	685	2216422.5
102	42	POL	430	5166.5	3748	6307	502	2221587.8
84	43	POL	10	5828	5485	6216	228	58280
86	43	POL	10	5553.7	5348	5850	137	55537.4
84	44	POL	9	6257.2	5668	6582	228	56314.5
86	44	POL	4	6056.5	6079	6170	91	24226.2
84	51	POL	60	8214.8	6765	9233	639	492888.8
86	51	POL	60	8326.8	7039	9416	548	499608.2
84	52	POL	62	7783.2	6582	8867	502	482558.4
86	52	POL	54	7772.4	6673	9004	594	419707.4
102	63	ELP	12.5	4351.7	4068	4845	102	54408
102	64	ELP	7.7	4328.3	3839	5073	0	33500
102	95	POL	499	5689.5	3062	7633	1097	2839081.5

102	96	POL	542	5617.4	3108	7542	1005	3044638.5
72	101	POL	2209	6919.6	3062	10787	1691	15285358
74	101	POL	2115	6953.8	3336	11016	1599	14707220
84	101	POL	2135	6552.4	2742	10650	1508	13989394
86	101	POL	1981	6553.6	2971	10467	1417	12982635
72	102	POL	2333	7109.5	3199	11153	1782	16586579
74	102	POL	2204	7129.5	3473	11473	1736	15713339
84	102	POL	2123	6795.4	3062	10696	1554	14426654
86	102	POL	1955	6694.5	2971	10558	1508	13087814

q94	Q94							
slice	volume	type	area	averg	min	max	std	count
56	1	POL	9	6177.2	5355	6880	454	55595.2
58	1	POL	3	6382.8	32454870	6555	129	19148.4
66	1	POL	8	5083.2	4478	5712	357	40666
68	1	POL	4	5257.7	5192	5355	32	21030.8
56	2	POL	8	6081.2	5647	6296	227	48649.9
58	2	POL	4	6255.7	5939	6426	162	25022.7
66	2	POL	9	6855.2	6004	7237	421	61696.8
68	2	POL	9	6649.6	6133	7399	389	59846.8
56	3	POL	18	5932	5127	7042	584	106776.6
58	3	POL	18	5111.6	4835	6361	746	92009.6
66	3	POL	18	5533.6	5549	6231	421	99604.1
68	3	POL	21	5373.6	4641	6490	681	112845.7
56	4	POL	21	5367.4	4348	5906	486	112715.9
58	4	POL	17	5244.3	4511	5744	421	89153.6
66	4	POL	25	5462.8	4868	6523	551	136570.2
68	4	POL	24	5488.9	5062	6815	681	131734.5
56	5	POL	49	5089.5	2856	6458	908	249383.5
58	5	POL	45	4232.8	1428	6231	1200	190477.8
66	5	POL	21	4936.2	3764	5614	519	103661
68	5	POL	20	4856.9	3732	5679	519	97137.5
56	6	POL	42	6418.3	5549	6945	292	269570.4
58	6	POL	47	6336.3	5809	7042	292	297806.2
66	6	POL	21	6047.4	5419	6458	259	126996
68	6	POL	27	5738.5	4770	6231	389	154939.7
56	7	POL	7	6365.8	5712	7010	421	44560.6
58	7	POL	7	4845.1	4056	5679	584	33915.4

56	8	POL	8	7071.1	6977	7140	32	56568.9
58	8	POL	10	7042.7	6912	7140	32	70427.1
56	9	POL	37	6062	4121	7140	843	224295.8
58	9	POL	41	4994.1	2888	6880	1168	204758
66	9	POL	23	6747.8	6101	7302	324	155199.3
68	9	POL	19	6412.4	5387	7172	519	121835.7
56	10	POL	39	7134.3	6588	7626	259	278235.9
58	10	POL	43	7124.2	6588	7594	259	306341.8
66	10	POL	24	6819.6	6101	7269	259	163670.1
68	10	POL	20	6817.2	5841	7107	259	136343
56	13	POL	9	4287.7	3570	4965	454	38588.9
56	14	POL	6	4154.2	3667	4608	292	24925.4
56	15	ELP	5.6	5692.6	5484	5776	1503991	31616.5
58	15	ELP	5.6	5649.9	5549	5679	1503991	31500.4
56	16	ELP	4.3	5745.6	5387	5906	1503991	24747.6
58	16	ELP	4.3	5485.7	5192	5874	1503991	23728.4
56	17	POL	27	6374.4	6069	6880	227	172108.3
58	17	POL	19	6347.5	5809	6945	357	120602.4
66	17	POL	24	5472.7	4705	6004	324	131345
68	17	POL	21	5319.5	4998	5647	162	111709.8
56	18	POL	27	5998.1	5192	6296	259	161950
58	18	POL	29	6012	5614	6426	227	174347.7
66	18	POL	17	5622.3	5127	6166	259	95579.7
68	18	POL	22	5952.5	5095	6555	389	130955.5
56	19	ELP	43	5073	4835	5419	102	218266.7
58	19	ELP	43.4	5074	4900	5419	107	220243.2

56	20	ELP	36.3	4739.5	3764	5127	192	172026.3
58	20	ELP	41.1	4804.8	3570	5322	217	197376.4
56	21	POL	47	5449.7	4446	6101	357	256134.1
58	21	POL	47	5353.7	3829	6231	519	251622.9
66	21	POL	40	5763.2	4576	6523	519	230527.2
68	21	POL	41	5492.8	3764	6263	584	225204.6
56	22	POL	30	5500	4933	6133	292	165000.7
58	22	POL	30	5508.7	4770	6296	357	165260.4
66	22	POL	55	5703.8	4543	6458	389	313709.1
68	22	POL	55	5785.8	4381	6718	486	318220.3
56	23	POL	18	6312.5	5744	7626	551	113624.6
58	23	POL	12	6428.8	5906	7302	421	77145.3
56	24	POL	19	6446.6	5647	6912	324	122484.8
58	24	POL	19	6496.1	5906	6815	259	123426
56	25	POL	12	5360.5	4673	6296	616	64325.6
58	25	POL	10	5608.2	32454870	6685	714	56082.1
56	26	POL	8	6024.4	5095	6685	519	48195.5
58	26	POL	8	5866.2	5095	6328	421	46929.8
56	29	POL	44	6074.2	4608	7269	584	267266.1
58	29	POL	44	5530.6	3667	7075	811	243346.9
66	29	POL	48	6071.8	4835	7432	584	291445
68	29	POL	41	6087.3	4933	7464	681	249578.2
56	30	POL	47	6466.8	5614	7010	324	303940.2
58	30	POL	47	6460.6	5744	7042	324	303648.1
66	30	POL	65	6288.8	5160	7237	389	408769.5
68	30	POL	67	6537.5	5614	7432	421	438011.4
56	31	POL	12	6596.5	5906	7010	292	79157.5

58	31	POL	12	5612	4381	6426	649	67343.9
66	31	POL	28	5722.5	3862	6685	649	160229.9
68	31	POL	27	5561.8	4186	6653	649	150168.8
56	32	POL	12	6769.6	6426	7172	227	81234.6
58	32	POL	8	6831.8	6458	7399	324	54654.1
66	32	POL	21	6608.4	6004	7140	292	138777.2
68	32	POL	20	6479.6	6069	7010	227	129592.4
56	33	POL	7	5471	5095	6069	292	38296.8
58	33	POL	7	6115.4	5744	6588	259	42808
56	34	POL	4	5022.4	4933	5290	162	20089.6
58	34	POL	5	5303.1	4998	5582	194	26515.7
56	35	POL	20	6043.1	5355	6523	324	120862.1
58	35	POL	20	6260.6	5874	6685	227	125211
66	35	POL	16	5795.2	5484	6069	194	92723.7
68	35	POL	10	6241.1	5874	6426	129	62410.8
56	36	POL	13	5891.8	5419	6263	259	76593.6
58	36	POL	13	6256.3	5647	6653	292	81332
66	36	POL	10	6101.5	6166	6620	389	61015.2
68	36	POL	8	5407.8	5030	5776	227	43262.4
96	41	POL	397	4174.7	2726	4998	389	1657342
98	41	POL	439	4040.5	2109	4770	454	1773790.2
96	42	POL	414	4291.5	2985	4965	324	1776678.8
98	42	POL	404	4220.7	3050	4933	324	1705180.6
66	43	POL	11	4620.4	4381	4868	162	50824.4
68	43	POL	9	4522	4316	4803	129	40698.4
66	44	POL	15	4816.3	4478	5127	194	72244.6
68	44	POL	12	4711.4	4219	5127	292	56536.4

66	51	POL	54	6228.3	5484	6750	292	336330.2
68	51	POL	61	6032.9	5225	6685	324	368006.1
66	52	POL	61	6271.8	4965	7107	486	382578.4
68	52	POL	79	6088.8	4900	6945	486	481014.1
96	63	ELP	11.4	3786	3083	4251	242	43289.3
98	63	ELP	7.5	3713.2	3342	3927	129	28028.8
96	64	ELP	9.6	4425.8	3667	4738	129	42693.3
98	64	ELP	7.3	4534.2	4186	4770	97	32929.8
96	95	POL	271	4781.5	2693	6004	746	1295794.4
98	95	POL	253	4496.4	2239	5809	843	1137576.8
96	96	POL	266	4637.3	2856	6004	746	1233513.5
98	96	POL	231	4431	2531	5712	778	1023562.7
56	101	POL	1975	5250.2	1817	7756	1233	10369114
58	101	POL	2030	5202.2	1428	7626	1265	10560501
66	101	POL	1845	5168.8	1849	7432	1038	9536419
68	101	POL	1904	5164.7	1785	7464	973	9833641
56	102	POL	1829	5257.1	2109	7626	1233	9615187
58	102	POL	1874	5270.5	1492	7594	1233	9876936
66	102	POL	2043	5293.2	2304	7334	1103	10814103
68	102	POL	1948	5289.6	2499	7432	1038	10304139

o69								
slice	volume	type	area	averg	min	max	std	count
72	1	POL	12	10847.8	9821	11651	565	130174
74	1	POL	11	9676.8	7991	11285	1033	106445
90	1	POL	4	9973.5	9516	10248	277	39894
92	1	POL	3	9943	9760	10065	131	29829
72	2	POL	14	10073.7	9272	10980	548	141032
74	2	POL	11	8662	6100	10187	1189	95282
90	2	POL	7	11302.4	10675	11956	419	79117
92	2	POL	8	11407	10858	12200	384	91256
72	3	POL	32	9275.8	7564	10492	939	296826
74	3	POL	33	9480.9	7930	11468	1264	312869
90	3	POL	20	11840.1	8540	13115	1235	236802
92	3	POL	20	11568.7	7503	13054	1583	231373
72	4	POL	26	9107.8	7442	10980	978	236802
74	4	POL	33	9164.8	7381	11529	1162	302438
90	4	POL	24	10558.1	9028	11895	1090	253394
92	4	POL	24	10578.4	10187	12261	1432	253882
72	5	POL	73	10930.7	7015	13115	1296	797941
74	5	POL	18	10664.8	7930	13542	1761	191967
90	5	POL	25	10601.8	7869	12505	1315	265045
92	5	POL	25	9589.2	6527	12200	1616	239730
72	6	POL	58	9761.1	7869	11651	963	566141
74	6	POL	22	9382.9	8113	10614	545	206424
90	6	POL	27	11908.6	10675	12871	561	321531
92	6	POL	27	11384.4	10248	12200	541	307379
72	7	POL	17	8457.5	7381	9638	617	143777
72	8	POL	12	9068.7	8540	9638	316	108824

72	9	POL	41	9074.1	7747	10492	770	372039
74	9	POL	48	8867.9	6344	11590	1299	425658
90	9	POL	28	6899.5	5490	7808	609	193187
92	9	POL	25	7100.4	5673	8052	601	177510
72	10	POL	52	8610.4	7564	9821	563	447740
74	10	POL	56	8224.1	6893	9943	748	460550
90	10	POL	28	7699.1	6649	9028	667	215574
92	10	POL	27	7475.9	6771	8235	416	201849
72	13	POL	7	7476.9	5429	8845	1097	52338
72	14	POL	8	7548.8	6161	8906	972	60390
72	15	ELP	8.7	8211.3	7503	8845	46340	71715.6
74	15	ELP	10	8368.1	7259	8967	60	83656.4
72	16	ELP	4.4	6880.5	6588	7076	46340	30513.6
74	16	ELP	7.7	6886.4	5795	8235	827	53042.5
72	17	POL	35	9224.9	7991	10431	716	322873
74	17	POL	23	9754.7	8479	11102	771	224358
90	17	POL	28	8069.4	6649	10248	1164	225944
92	17	POL	23	7911.4	6344	10004	1331	181963
72	18	POL	33	8305.2	7503	9089	498	274073
74	18	POL	34	8123.8	7259	9211	506	276208
90	18	POL	23	6662.3	5368	7991	907	153232
92	18	POL	27	7394.6	5734	8723	1090	199653
72	19	ELP	31.9	8489.8	6832	9577	569	270631.3
74	19	ELP	31.9	8152.8	7198	9028	459	260447.4
72	20	ELP	27.6	8937.9	7564	9760	407	246486.2
74	20	ELP	30.3	9332.5	6893	10309	561	282744.5

72	21	POL	59	7367.6	5856	8357	595	434686
74	21	POL	57	7250.4	5734	8296	518	413275
90	21	POL	61	7671	5795	8418	525	467931
92	21	POL	56	7718.7	6527	8540	535	432246
72	22	POL	46	8091.8	6344	9089	612	372222
74	22	POL	51	8361.8	7503	8967	376	426451
90	22	POL	62	8401.3	7503	9089	340	520879
92	22	POL	50	8031.3	6649	9333	643	401563
72	23	POL	20	9201.8	7686	10980	1178	184037
74	23	POL	62	8315.7	7198	9943	588	515572
72	24	POL	20	10403.5	7930	12322	1382	208071
74	24	POL	66	10159.3	7015	12871	1839	670512
72	25	POL	15	9845.4	8723	10919	788	147681
72	26	POL	10	8174	6588	10248	1103	81740
72	29	POL	65	8327	6344	10492	951	541253
74	29	POL	78	9158.6	6893	11163	1133	714371
90	29	POL	50	7538.4	5734	8906	840	376919
92	29	POL	50	7618.9	6283	8784	708	380945
72	30	POL	73	8272.6	7015	9821	575	603900
74	30	POL	88	8840.1	6710	10553	931	777933
90	30	POL	69	8017.5	6405	8967	613	553209
92	30	POL	69	7794.7	6588	8662	566	537837
72	31	POL	19	11307.5	10187	11834	484	214842
74	31	POL	30	10673	8662	11773	846	320189
90	31	POL	27	9256.2	7198	11407	1313	249917
92	31	POL	20	8747.4	6649	10553	1130	174948

72	32	POL	14	10570.4	9455	11346	537	147986
74	32	POL	35	10725.5	9211	11712	684	375394
90	32	POL	26	11043.3	9638	12383	711	287127
92	32	POL	23	11120.6	10614	11712	353	255773
72	33	POL	10	10302.9	8601	11102	722	103029
74	33	POL	7	10614	10187	11041	252	74298
72	34	POL	5	8003.2	7991	8784	502	40016
74	34	POL	3	8946.7	8845	9028	76	26840
72	35	POL	23	10232.1	8967	11285	674	235338
74	35	POL	16	9954.4	8662	11224	762	159271
90	35	POL	17	6265.1	5551	7686	585	106506
92	35	POL	15	7726.7	6161	8784	772	115900
72	36	POL	14	8949.6	8113	9577	490	125294
74	36	POL	20	9485.5	8540	10126	464	189710
90	36	POL	17	6806.9	6405	7259	218	115717
92	36	POL	17	8127.4	7015	8967	589	138165
108	41	POL	585	6383.9	3599	8662	1036	3734603
110	41	POL	549	6306.2	4087	8296	914	3462116
108	42	POL	682	7124.2	5002	8784	726	4858711
110	42	POL	645	6835.4	4636	8357	754	4408836
90	43	POL	26	6663.1	5917	7381	360	173240
92	43	POL	23	6062.9	4758	7076	725	139446
90	44	POL	22	7156.4	6344	7625	338	157441
92	44	POL	22	6768.2	5490	7259	520	148901
90	51	POL	68	8514	7259	9760	582	578951
92	51	POL	65	8728.6	7625	9638	591	567361

90	52	POL	72	8504.4	6893	10187	992	612318
92	52	POL	64	8914.6	6893	10980	1146	570533
108	63	ELP	12.7	5464.1	4941	5856	128	69262.3
110	63	ELP	12	5609.9	4880	6039	235	67300.9
108	64	ELP	8.6	5381.8	5063	5612	0	46026.7
110	64	ELP	10.3	5724.6	5185	5978	133	58815.8
108	95	POL	475	6293.9	3294	8418	1009	2989610
110	95	POL	459	6137.9	3294	8235	1069	2817285
108	96	POL	430	6591	3355	8601	958	2834121
110	96	POL	327	6521.6	3355	8174	944	2132560
72	101	POL	2856	7997.9	3050	13115	2084	22842004
74	101	POL	2665	8052.9	3050	13603	2053	21460882
90	101	POL	2507	7549.3	3355	13298	1916	18925982
92	101	POL	2356	7653	3843	13481	1902	18030368
72	102	POL	2618	7666.7	2318	12932	2146	20071436
74	102	POL	2726	7712.5	2257	12871	2129	21024316
90	102	POL	2815	7612.8	3782	13176	1943	21430028
92	102	POL	2625	7655.8	4270	13481	1983	20096412

o47								
slice	volume	type	area	averg	min	max	std	count
144	1	POL	8	1292.1	1146	1428	89	10337
148	1	POL	5	1273.6	1237	1345	48	6368
172	1	POL	10	1056	938	1154	68	10560
176	1	POL	8	1090.5	1021	1179	65	8724
144	2	POL	8	1349.2	1320	1412	52	10794
148	2	POL	8	1332.6	1254	1420	61	10661
172	2	POL	8	1165.4	963	1378	131	9323
176	2	POL	7	1233.3	1071	1353	92	8633
144	3	POL	21	1225.3	1104	1387	81	25731
148	3	POL	19	1371.3	1171	1652	168	26054
172	3	POL	16	1100.5	963	1237	103	17608
176	3	POL	16	1086.9	946	1212	101	17391
144	4	POL	15	1316.4	1237	1445	85	19746
148	4	POL	25	1383.6	1245	1478	64	34589
172	4	POL	19	1189.9	1096	1328	118	22609
176	4	POL	23	1152.5	1005	1254	105	26508
144	5	POL	46	1460.6	1129	1785	163	67188
148	5	POL	12	1555.5	1220	1711	144	18666
172	5	POL	19	1197.4	921	1312	101	22750
176	5	POL	20	1120.1	955	1204	79	22401
144	6	POL	40	1430	1171	1603	100	57200
148	6	POL	22	1376	1096	1495	102	30273
172	6	POL	23	1026.1	780	1196	94	23601
176	6	POL	19	991.9	797	1187	113	18846
144	7	POL	12	1268.2	1129	1470	110	15219
144	8	POL	10	1408.2	1362	1453	34	14082

144	9	POL	39	1338.3	1121	1536	116	52193
148	9	POL	28	1277.2	938	1453	134	35761
172	9	POL	18	1307.3	1088	1395	84	23531
176	9	POL	20	1289.8	963	1403	110	25797
144	10	POL	33	1396.5	1196	1619	137	46083
148	10	POL	38	1324	946	1503	100	50313
172	10	POL	20	1085.2	822	1204	89	21703
176	10	POL	16	1073.5	1013	1121	36	17176
144	13	POL	7	820.7	606	1038	139	5745
144	14	POL	6	972.7	855	1112	93	5836
144	15	ELP	5.5	1638.8	1362	1777	46340	9060.4
148	15	ELP	6.6	1630.7	1428	1744	46340	10769.4
144	16	ELP	4.3	1952.7	1794	2026	46340	8387.9
148	16	ELP	7.2	1844.6	1536	2026	48	13266.8
144	17	POL	21	1290.4	1187	1569	108	27099
148	17	POL	27	1327.6	1187	1569	125	35844
172	17	POL	21	1187.6	905	1370	138	24940
176	17	POL	21	1040.6	681	1353	207	21852
144	18	POL	28	1332.9	1121	1553	136	37322
148	18	POL	25	1282.9	1079	1528	138	32073
172	18	POL	14	1318.5	1013	1603	199	18459
176	18	POL	20	1087.6	855	1428	189	21752
144	19	ELP	27.5	1332.3	971	1503	116	36656.5
148	19	ELP	16.1	1271.6	880	1428	73	20419.8
144	20	ELP	18.5	1017.9	706	1212	102	18844.3
148	20	ELP	17.9	1065	838	1212	104	19041.5

144	21	POL	43	1216.2	955	1461	156	52298
148	21	POL	38	1182.2	1005	1470	111	44923
172	21	POL	38	1323.4	980	1569	143	50288
176	21	POL	38	1344	955	1611	153	51072
144	22	POL	36	1092.5	830	1353	122	39330
148	22	POL	39	1144.3	980	1353	88	44626
172	22	POL	46	1231.6	988	1412	103	56654
176	22	POL	49	1228.5	980	1428	112	60196
144	23	POL	17	1406.6	1337	1453	43	23913
148	23	POL	50	1353.7	913	1528	170	67685
144	24	POL	19	1345.8	1295	1403	29	25571
148	24	POL	42	1337.9	1088	1603	141	56192
144	25	POL	12	893.2	739	1146	140	10719
144	26	POL	10	1093.5	772	1328	182	10935
144	29	POL	45	1361.9	1137	1511	87	61287
148	29	POL	46	1246.5	1029	1470	116	57337
172	29	POL	48	1181.4	880	1403	133	56707
176	29	POL	54	1204.1	847	1428	144	65024
144	30	POL	44	1361.3	1046	1627	166	59898
148	30	POL	84	1422	1071	1627	141	119452
172	30	POL	57	1395	1220	1503	67	79513
176	30	POL	46	1332.9	1096	1436	81	61315
144	31	POL	13	1523.8	1345	1594	71	19810
148	31	POL	30	1306.7	913	1544	182	39200
172	31	POL	20	1060.1	622	1453	225	21202
176	31	POL	23	1141	830	1362	151	26244

144	32	POL	12	1472.4	1370	1536	45	17669
148	32	POL	31	1372.6	1096	1569	127	42552
172	32	POL	25	1042.8	772	1245	111	26069
176	32	POL	27	1053.5	847	1295	109	28444
144	33	POL	5	1818.4	1785	1835	19	9092
148	33	POL	4	1845.5	1785	1885	39	7382
144	34	POL	4	1380.2	1237	1478	102	5521
148	34	POL	1	1428	999999	1428	0	1428
144	35	POL	15	1788.5	1735	1843	47	26827
148	35	POL	18	1701.7	1420	1943	145	30630
172	35	POL	6	1374	1312	1428	36	8244
176	35	POL	9	1296.2	1270	1353	31	11666
144	36	POL	13	1709.8	1528	1893	83	22228
148	36	POL	8	1790.5	1611	1976	130	14324
172	36	POL	8	1406.2	1295	1519	87	11250
176	36	POL	7	1275.1	1154	1362	61	8926
228	41	POL	374	919.6	622	1187	124	343939
232	41	POL	374	894.4	581	1212	125	334492
228	42	POL	424	883.6	531	1196	150	374649
232	42	POL	381	879.1	523	1196	133	334945
172	43	POL	8	1250.4	1112	1328	66	10003
176	43	POL	11	1173.5	1021	1254	70	12908
172	44	POL	14	1379.5	1245	1536	92	19313
176	44	POL	8	1416.8	1270	1495	77	11334
172	51	POL	45	1378	1154	1644	145	62011
176	51	POL	52	1432.3	1154	1686	160	74481

172	52	POL	69	1305.1	1038	1561	133	90050
176	52	POL	66	1384.7	1079	1603	103	91390
228	63	ELP	7.7	783.2	706	855	46340	6013.1
232	63	ELP	7.7	801.1	664	930	46340	6150.6
228	64	ELP	7.5	831.7	755	847	29	6197
232	64	ELP	7.5	903.6	863	938	34	6733.1
228	95	POL	220	886.7	564	1245	149	195076
232	95	POL	156	873.5	523	1187	147	136262
228	96	POL	144	794.8	556	963	90	114451
232	96	POL	126	733.2	473	971	100	92385
144	101	POL	2052	1138.2	191	1843	303	2335669
148	101	POL	1998	1140.1	191	1943	304	2277864
172	101	POL	1885	1062.4	423	1652	236	2002596
176	101	POL	1904	1052.2	348	1686	232	2003395
144	102	POL	1861	1133	323	2034	299	2108601
148	102	POL	1873	1123.9	282	2026	292	2105083
172	102	POL	1908	1029	481	1611	224	1963245
176	102	POL	1839	1026.5	556	1603	214	1887776

o23								
slice	volume	type	area	averg	min	max	std	count
72	1	POL	9	6550.6	6038	6960	311	58955
74	1	POL	12	6509.6	5325	7086	557	78115
82	1	POL	12	6425.8	5744	7002	365	77109
84	1	POL	7	6025.9	5535	6499	314	42181
72	2	POL	8	6415.4	5996	6835	282	51323
74	2	POL	9	6401.3	5828	6919	344	57612
82	2	POL	15	6532.7	6038	6793	200	97991
84	2	POL	8	6577.9	6080	6960	286	52623
72	3	POL	26	6604	5661	7170	531	171705
74	3	POL	29	6575.9	5493	7506	523	190701
82	3	POL	16	6218.9	6331	7296	905	99502
84	3	POL	19	6907.5	6038	7715	500	131242
72	4	POL	21	6389.4	5409	7128	509	134178
74	4	POL	27	6401.3	5702	7422	402	172836
82	4	POL	25	6554.5	5409	7254	544	163863
84	4	POL	24	6466.1	5199	7506	735	155187
72	5	POL	57	7856.5	6331	9225	788	447821
74	5	POL	15	7888.6	6793	8973	725	118329
82	5	POL	20	6828.4	5283	7925	905	136568
84	5	POL	24	6831.1	5032	7799	902	163946
72	6	POL	50	7179.4	6038	8051	611	358968
74	6	POL	22	7374	6373	8051	452	162229
82	6	POL	21	6876.7	6122	7506	367	144411
84	6	POL	23	6727.1	6122	7296	282	154723
72	7	POL	15	7656.6	7044	8177	360	114849
72	8	POL	10	5681.6	4990	6248	376	56816

72	9	POL	41	6394.9	4906	7506	738	262190
74	9	POL	43	7246.2	5325	7883	529	311585
82	9	POL	27	7018	5032	7673	575	189487
84	9	POL	20	5968.8	3774	7086	870	119375
72	10	POL	48	6230.1	5619	7044	368	299043
74	10	POL	48	5708.6	4948	6290	339	274014
82	10	POL	27	6334.6	5493	7296	601	171033
84	10	POL	20	6111.4	5325	6877	489	122227
72	13	POL	10	5270.7	4906	5661	269	52707
72	14	POL	8	5319.9	4948	5619	222	42559
72	15	ELP	5.8	8229.1	6373	9435	46340	47546.2
74	15	ELP	8.1	8972.5	7548	9812	369	73119.5
72	16	ELP	4.4	8785.4	8596	8973	46340	38509
74	16	ELP	7.4	8864.7	8135	9309	328	65959.8
72	17	POL	24	7294.2	6960	8093	308	175060
74	17	POL	14	7529.6	6919	8218	378	105415
82	17	POL	17	7261.4	6667	8344	535	123444
84	17	POL	21	7088.3	6499	8302	595	148855
72	18	POL	30	6599.8	4738	7883	947	197995
74	18	POL	19	6814.8	5325	8177	948	129482
82	18	POL	25	6120.1	4654	8093	1150	153003
84	18	POL	20	6828.2	5115	8260	1089	136565
72	19	ELP	26.6	5675.8	4822	6248	284	151043.7
74	19	ELP	29.1	5630.3	4570	6206	327	163892.6
72	20	ELP	23.6	5209.5	4277	5661	302	122731.9
74	20	ELP	20.2	5090.9	4025	5744	370	103078.2

72	21	POL	55	5768	5199	6541	339	317241
74	21	POL	54	5238.1	3690	6164	533	282858
82	21	POL	53	5452.5	4612	6499	343	288981
84	21	POL	44	5491	4948	6625	303	241603
72	22	POL	41	5233	4654	5661	237	214553
74	22	POL	39	5086.4	4696	5535	226	198370
82	22	POL	58	5353.2	4906	6331	319	310487
84	22	POL	51	5439.3	4738	6331	329	277405
72	23	POL	19	6302.6	5702	7589	696	119750
74	23	POL	58	5929.4	4780	7338	532	343906
72	24	POL	19	6397.7	5786	6919	326	121557
74	24	POL	54	6204.9	4990	6793	481	335064
72	25	POL	12	5464.9	4990	6248	526	65579
72	26	POL	10	5652.2	5786	6206	485	56522
72	29	POL	52	6841.9	5032	8302	977	355781
74	29	POL	72	6563.3	5032	8135	727	472557
82	29	POL	32	6036.6	4403	7296	748	193171
84	29	POL	49	6724.2	5702	7673	481	329488
72	30	POL	55	5877.9	5199	6960	499	323284
74	30	POL	79	6145.1	5073	7170	680	485464
82	30	POL	70	5749.8	4612	7044	576	402488
84	30	POL	57	5972.6	5325	6835	554	340436
72	31	POL	17	8973.4	9099	9476	485	152547
74	31	POL	30	8191.9	6541	9183	755	245758
82	31	POL	32	6743	4864	8344	1027	215776
84	31	POL	23	6584.9	4948	8177	991	151453

72	32	POL	12	7054.7	5828	7757	554	84656
74	32	POL	31	7835.6	6164	8428	564	242905
82	32	POL	27	7393.9	5996	8093	581	199634
84	32	POL	25	7500.5	6457	8093	436	187513
72	33	POL	5	9618.8	9518	9770	108	48094
74	33	POL	9	9597.6	9099	9980	256	86378
72	34	POL	5	7816	7380	8177	263	39080
74	34	POL	0	NaN	999999	0	2147483647	0
72	35	POL	22	9207.7	8638	9770	424	202570
74	35	POL	14	9174	7925	9854	555	128436
82	35	POL	19	9533.8	8596	10022	389	181143
84	35	POL	8	9030.9	8470	9267	236	72247
72	36	POL	11	8961.8	8554	9309	226	98580
74	36	POL	15	8579	7799	9351	473	128685
82	36	POL	15	8551.2	8093	9183	447	128268
84	36	POL	11	7665.7	6919	8302	439	84323
106	41	POL	489	5307	3396	6919	810	2595116
108	41	POL	453	5200.7	3354	6667	671	2355902
106	42	POL	485	5062.8	3732	6164	530	2455444
108	42	POL	468	4959.5	3061	5996	557	2321050
82	43	POL	24	5243	4570	5996	401	125831
84	43	POL	11	5397.5	4780	5954	320	59373
82	44	POL	27	5829.7	5073	6080	271	157403
84	44	POL	11	6186.5	5619	6541	316	68051
82	51	POL	55	5867.2	5032	7002	507	322694
84	51	POL	59	5854.6	5241	6541	330	345422

82	52	POL	55	6263.6	5325	7128	500	344499
84	52	POL	76	6132.3	5199	7128	475	466054
106	63	ELP	6.9	4192.2	3774	4570	20	28919.9
108	63	ELP	6.7	4389	4151	4612	91	29487.2
106	64	ELP	7.1	3813.8	3690	3983	103	27051.9
108	64	ELP	7	3896.4	3732	3983	21	27209.8
106	95	POL	453	4813.3	2599	6960	1109	2180446
108	95	POL	441	4727.6	2516	6751	1102	2084885
106	96	POL	440	5023	2893	6080	717	2210121
108	96	POL	388	4854.3	2012	5954	790	1883451
72	101	POL	2292	6019.8	2054	9770	1572	13797293
74	101	POL	2235	6082.6	2264	9980	1577	13594644
82	101	POL	2191	5912.7	2683	10022	1353	12954736
84	101	POL	2108	5880.3	2348	9267	1223	12395595
72	102	POL	2306	5634.6	2683	9309	1285	12993347
74	102	POL	2367	5617.4	2599	9435	1273	13296369
82	102	POL	2325	5611.1	2432	9183	1085	13045762
84	102	POL	2345	5603.5	2390	8596	1028	13140226

n75								
slice	volume	type	area	averg	min	max	std	count
118	1	POL	11	14389	12655	15354	927	158278.8
120	1	POL	15	14016.5	11136	15776	1334	210247.4
126	1	POL	8	13973.6	11811	15777	1341	111788.5
128	1	POL	8	13203.8	12064	14680	957	105630
118	2	POL	8	15387.1	13921	16030	638	123096.4
120	2	POL	8	15492.1	13835	16536	788	123937.2
126	2	POL	8	11558.6	10040	13415	1166	92469
128	2	POL	8	11379.2	9955	12486	806	91033.4
118	3	POL	25	12024.1	7592	14174	1662	300603.5
120	3	POL	25	10390.6	5568	13583	2203	259765.5
126	3	POL	18	11300.7	8943	15355	2038	203412.1
128	3	POL	18	10972.6	7846	14512	2058	197507.1
118	4	POL	20	13444.2	11810	15187	925	268883.7
120	4	POL	20	12575.3	11727	13752	639	251505.3
126	4	POL	25	8949.7	7170	11474	1312	223742
128	4	POL	25	7886.6	6327	10123	1263	197165.3
118	5	POL	15	14652.2	13161	15608	741	219783.8
120	5	POL	15	12475	9870	14257	1461	187125.2
126	5	POL	21	10397.4	8351	11727	961	218345.2
128	5	POL	21	8107.2	5483	10292	1342	170251.4
156	5	ELP	6.7	4131.7	3206	4893	46340	27800.6
118	6	POL	22	14703.1	12402	16451	1112	323468.7
120	6	POL	22	13207.5	10883	15186	1161	290565.1
126	6	POL	25	10481.9	8437	12908	1374	262047.5
128	6	POL	25	9034.2	6664	11390	1429	225854.5
156	6	ELP	7.3	5428.6	4640	5737	46340	39806.3
118	9	POL	27	12217.7	9955	14174	1047	329878.5

120	9	POL	26	10893.3	8182	12993	1339	283224.7
126	9	POL	27	11174.1	7677	13583	1604	301701.3
128	9	POL	27	11636.6	7929	13836	1697	314187.8
118	10	POL	38	14300.5	12402	17210	1148	543420.3
120	10	POL	37	13209.4	11811	15776	1006	488749.1
126	10	POL	27	10796	9364	13415	1054	291492.6
128	10	POL	27	11183.6	9618	13499	1062	301956.2
118	15	ELP	7.1	13864	13499	14089	8552	98254.8
120	15	ELP	7.1	14399.2	13667	14849	8913	102077.4
118	16	ELP	6.8	12691.1	10714	15861	7952	86785.5
120	16	ELP	6.8	14302.3	12233	15439	8963	97835.8
118	17	POL	21	10545.8	8942	12317	1101	221461.6
120	17	POL	21	9963.4	8267	11557	1074	209231.3
126	17	POL	26	8086.2	5062	11642	1905	210240.4
128	17	POL	26	8186.7	5905	11136	1722	212854.9
118	18	POL	30	12607.4	9617	15017	1269	378222.8
120	18	POL	28	12176.1	10123	14764	1165	340930.8
126	18	POL	22	9986	9280	10630	398	219692.4
128	18	POL	22	10093.6	8858	12571	1135	222058.1
118	19	ELP	13.5	9197	8689	9701	5703	123911.8
120	19	ELP	13.6	8389.3	7845	8943	5190	113849.2
118	20	ELP	12.9	8470.6	7508	9280	5440	109500.5
120	20	ELP	13.1	8227.2	7592	8943	5211	107392.8
118	21	POL	42	11871.8	8436	15017	1822	498617.4
120	21	POL	40	11408.6	7845	15945	2282	456344.2
126	21	POL	53	11572.9	8183	15861	2138	613362
128	21	POL	53	11759.1	8774	15523	1932	623233.7

118	22	POL	27	12311.4	10883	13836	809	332407.4
120	22	POL	27	11824	9618	13583	1021	319247.8
126	22	POL	53	11330.9	9364	13161	978	600535.2
128	22	POL	53	11419.9	8942	13751	1113	605253.5
118	23	POL	37	13291.5	9448	15777	1590	491783.9
120	23	POL	37	12716.8	7845	15101	2003	470520.9
118	24	POL	56	12784.8	10208	15187	1144	715948.6
120	24	POL	63	12579	9448	14764	1137	792477.3
118	29	POL	80	12538.2	8942	15861	1601	1003054.4
120	29	POL	67	11790.1	7592	14932	1897	789938.4
126	29	POL	33	12090.3	8351	14933	2415	398978.8
128	29	POL	33	11691.4	8099	14680	2400	385817.6
118	30	POL	75	14099.7	10040	16030	1365	1057476.6
120	30	POL	75	14173.9	10630	16873	1482	1063040.6
126	30	POL	56	14223.7	10292	18392	2665	796529.6
128	30	POL	56	13905.9	10208	18477	2713	778729.4
118	31	POL	27	12827.1	9448	16451	1647	346331.2
120	31	POL	27	10589.6	6580	14764	2247	285919.4
126	31	POL	29	13051	9196	15270	1489	378478.3
128	31	POL	29	10156.1	6327	12740	1583	294528.2
118	32	POL	27	17036.3	12739	20840	2094	459981.4
120	32	POL	27	16767.5	11896	20754	2284	452722.2
126	32	POL	22	14833.7	12824	16789	1296	326342.3
128	32	POL	22	14024.4	12318	15777	1308	308537.2
118	33	POL	4	13351.1	12739	13582	354	53404.5
120	33	POL	4	12718.4	12401	13076	241	50873.7
118	34	POL	5	9854.1	9111	10545	531	49270.4
120	34	POL	5	9820.5	9111	10545	473	49102.6

118	35	POL	10	12182.7	11220	13076	548	121826.9
120	35	POL	10	11474.1	10040	12401	745	114740.7
126	35	POL	10	13549.7	12232	14596	655	135496.6
128	35	POL	10	12621.6	11473	13162	470	126215.6
118	36	POL	20	13790.1	11896	15692	1143	275802.3
120	36	POL	18	13934.8	11979	16198	1238	250826.2
126	36	POL	9	14633.3	12486	16283	1120	131699.6
128	36	POL	9	13592.6	11980	14595	797	122333.5
156	41	POL	713	6912.9	2953	12824	1947	4928926
158	41	POL	641	6746.4	3881	11559	1573	4324440
156	42	POL	669	8710.2	3796	11727	1686	5827107
158	42	POL	596	8623.3	5146	11643	1418	5139489
126	43	POL	12	6221.8	4808	7002	676	74661.9
128	43	POL	12	4942.3	2783	6664	1227	59308.1
126	44	POL	13	7924.1	7256	8605	379	103013.5
128	44	POL	13	7878.6	7340	8268	304	102421.3
126	51	POL	55	11210.3	9196	13920	1409	616565.1
128	51	POL	55	11144.3	8942	13667	1295	612934.1
126	52	POL	74	12555	9618	15523	1398	929070.1
128	52	POL	74	12399.9	9955	15355	1266	917594.9
158	63	ELP	11.4	5933.2	4724	6496	84	67852.9
158	64	ELP	10	6098.2	5146	6327	206	61108.2
156	95	POL	266	9029.3	5737	12149	1437	2401781
158	95	POL	194	8838.2	4556	12402	1757	1714609

156	96	POL	289	8154.4	4724	11137	1506	2356628
158	96	POL	210	7900.8	2953	10462	1450	1659165
118	101	POL	2060	10356.5	1096	17126	3363	21334416
120	101	POL	2044	10165.4	1686	17464	3241	20778118
126	101	POL	2003	9665.9	758	16283	2995	19360858
128	101	POL	2003	9393.3	589	15777	2879	18814796
118	102	POL	2169	10595	1349	20840	3872	22980518
120	102	POL	2176	10430.3	1012	20754	3690	22696264
126	102	POL	1996	9948.8	927	18392	3289	19857722
128	102	POL	1996	9759.9	1265	18477	3117	19480676

m52								
slice	volume	type	area	averg	min	max	std	count
70	1	POL	11	2757.8	2520	3055	151	30336
72	1	POL	6	2812.8	2730	2940	109	16877
78	1	POL	8	3188.2	2997	3265	88	25506
80	1	POL	6	2984.5	2902	3112	72	17907
70	2	POL	8	3150.1	3341	3341	154	25201
72	2	POL	9	3122.4	2978	3303	147	28102
78	2	POL	8	3236.1	3016	3341	95	25889
80	2	POL	7	3076.3	2940	3226	103	21534
70	3	POL	29	2621.9	2195	2806	141	76035
72	3	POL	25	2646.7	2444	2864	141	66168
78	3	POL	20	2420.6	2214	2921	176	48412
80	3	POL	17	2705.3	2386	3131	214	45990
70	4	POL	25	2929.3	2577	3475	260	73232
72	4	POL	26	3037.6	2749	3456	233	78978
78	4	POL	25	2783.4	2596	3284	289	69586
80	4	POL	24	2716.4	2310	3246	295	65193
70	5	POL	18	2851.9	2768	3016	90	51334
72	5	POL	22	2757	2444	3016	176	60653
78	5	POL	21	2375.4	2195	2615	122	49883
80	5	POL	23	2417.7	2081	2806	202	55608
70	6	POL	22	3729.8	3226	3933	206	82056
72	6	POL	25	3851.1	3417	4181	185	96277
78	6	POL	25	2979.7	2463	3494	292	74492
80	6	POL	22	2718.5	2329	3169	234	59808
70	9	POL	38	3180.7	2558	3742	290	120868
72	9	POL	33	3365.2	2825	3895	309	111053
78	9	POL	27	3502.9	3016	3799	211	94577

80	9	POL	20	3390.5	2825	3761	209	67810
70	10	POL	42	3728.4	3246	4009	166	156592
72	10	POL	40	3831.7	3284	4219	225	153267
78	10	POL	27	3365.1	2845	3818	299	90857
80	10	POL	19	3491.7	3131	3666	156	66342
70	15	ELP	7.1	2922.7	2768	3093	105	20883.2
72	15	ELP	7.1	3117.4	2997	3207	56	22122.2
70	16	ELP	7	3074.7	2883	3360	162	21592.1
72	16	ELP	7.5	3440.4	3207	3589	96	25719.7
70	17	POL	23	3033	2825	3169	88	69759
72	17	POL	32	2972.8	2558	3284	197	95130
78	17	POL	26	2564	2329	2883	168	66664
80	17	POL	23	2280	2062	2367	91	52441
70	18	POL	30	3582.8	3360	3990	209	107484
72	18	POL	27	3776.6	3112	4238	300	101967
78	18	POL	22	2717	2386	3188	240	59773
80	18	POL	20	2397.8	2062	2787	222	47956
70	19	ELP	14	3282.4	3016	3417	72	46038.8
72	19	ELP	17.2	3098.9	2730	3322	97	53196.5
70	20	ELP	19	3166	2501	3436	141	60118.9
72	20	ELP	20.4	3115.5	2768	3341	137	63500
70	21	POL	45	2769.5	2195	3093	226	124627
72	21	POL	49	2786.9	2444	3016	154	136556
78	21	POL	53	2846.7	2463	3093	142	150874
80	21	POL	43	2841.9	2348	3150	208	122201
70	22	POL	38	2863.6	2405	3284	269	108817
72	22	POL	46	2738.7	2310	3112	202	125979

78	22	POL	53	2765.6	2463	3093	143	146579
80	22	POL	56	2707.6	2253	3016	169	151623
70	23	POL	49	2916.2	2291	3131	224	142895
72	23	POL	67	2789.8	2367	3112	159	186916
70	24	POL	52	3295.4	2768	3799	246	171362
72	24	POL	53	3315.8	2825	3857	288	175738
70	29	POL	75	3187.3	2673	3780	253	239045
72	29	POL	62	3285.9	2711	3780	332	203723
78	29	POL	42	2904.1	2386	3265	223	121971
80	29	POL	49	2874.1	2291	3303	238	140832
70	30	POL	73	3310.2	2825	3742	223	241642
72	30	POL	88	3451.6	2730	3895	274	303744
78	30	POL	56	3259.1	2634	3799	249	182507
80	30	POL	63	3118.6	2730	3417	200	196470
70	31	POL	27	3029.9	2673	3246	157	81806
72	31	POL	29	2810.9	2539	3035	153	81515
78	31	POL	29	2532.4	1947	3035	260	73440
80	31	POL	23	2602.1	2482	3093	276	59849
70	32	POL	31	3706.2	2902	4238	394	114892
72	32	POL	23	3836.6	3207	4296	299	88241
78	32	POL	22	3417.3	2711	3933	351	75181
80	32	POL	27	2957.1	2463	3341	229	79841
70	33	POL	4	2983	2825	3074	102	11932
72	33	POL	1	2768	999999	2768	0	2768
70	34	POL	3	3353.7	3303	3417	47	10061
72	34	POL	1	3589	999999	3589	0	3589
70	35	POL	10	3251.2	3131	3341	59	32512

72	35	POL	15	3197.1	2940	3417	139	47957
78	35	POL	10	3167.3	2997	3265	84	31673
80	35	POL	10	2857.9	2615	3112	156	28579
70	36	POL	20	3634.1	3150	3799	173	72682
72	36	POL	11	3924.2	3532	4162	187	43166
78	36	POL	9	3311.2	3226	3341	46	29801
80	36	POL	8	3033.1	2864	3169	100	24265
92	41	POL	489	2589.4	1890	2978	211	1266216
94	41	POL	507	2517.7	1852	2997	256	1276463
92	42	POL	493	2466.4	1928	2921	223	1215949
94	42	POL	450	2336.2	1775	2959	229	1051275
78	43	POL	12	2952.5	2787	3035	76	35430
80	43	POL	11	2723	2501	2883	114	29953
78	44	POL	11	2856.6	2749	2978	65	31423
80	44	POL	12	2446.8	2348	2520	50	29361
78	51	POL	55	2715.4	2463	2959	106	149347
80	51	POL	60	2605.2	2348	2978	137	156311
78	52	POL	74	2884.5	2501	3131	148	213455
80	52	POL	73	2713.2	2291	2959	146	198060
92	63	ELP	12.9	2654.8	2195	2902	122	34175.6
94	63	ELP	7	2502.4	2272	2806	178	17585.3
92	64	ELP	8.3	2796.6	2577	2921	29	23095.8
94	64	ELP	7.5	2869.6	2806	2902	54	21495
92	95	POL	297	2444.8	1813	3016	213	726096
92	96	POL	211	2445.4	1794	2845	213	515970

94	96	POL	189	2345	1756	2730	231	443214
94	96	POL	121	2110.6	1565	2444	222	255382
70	101	POL	2195	2613.2	954	3876	582	5735959
72	101	POL	2207	2592.5	935	3914	536	5721753
78	101	POL	2108	2649.1	1279	3895	434	5584249
80	101	POL	1988	2625.4	1508	3761	389	5219388
70	102	POL	2135	2997	954	4257	658	6398687
72	102	POL	2079	3077.2	1107	4429	667	6397502
78	102	POL	2152	2777.9	1336	4067	516	5977969
80	102	POL	2078	2653.5	1565	3666	433	5514069

m43	Date counted: Mon							
slice	volume	type	area	averg	min	max	std	count
66	1	POL	11	7401.3	6396	8331	638	81414
68	1	POL	6	7482.2	6791	8173	482	44893
74	1	POL	6	6969	6673	7225	187	41814
76	1	POL	7	6977.4	999999	7265	176	
66	2	POL	8	7052.6	6554	7541	292	56421
68	2	POL	9	7159.8	6752	7699	300	64438
74	2	POL	12	7643.2	6949	8134	334	91719
76	2	POL	7	6842	6554	7028	181	47894
66	3	POL	29	6068.1	3672	7344	827	175975
68	3	POL	23	6228	5133	7147	554	143245
74	3	POL	20	5768.4	5251	7423	654	115368
76	3	POL	16	4888.4	4382	5922	432	78215
66	4	POL	19	6604.2	5607	8094	863	125480
68	4	POL	26	6495	5607	7818	670	168870
74	4	POL	25	6037.7	5528	7028	607	150942
76	4	POL	24	5412.5	4856	5804	272	129899
66	5	POL	15	8015.1	6752	8726	593	120226
68	5	POL	18	7679.6	7107	8450	419	138232
74	5	POL	17	5680.9	5370	6159	237	96576
76	5	POL	19	4538.4	4106	5172	341	86230
66	6	POL	18	7563.2	7107	8055	260	136138
68	6	POL	21	7430.5	6752	8292	423	156041
74	6	POL	21	6341.7	5883	6712	226	133175
76	6	POL	22	5136.3	4540	5607	293	112999
66	9	POL	30	7310.9	6712	7778	266	219328
68	9	POL	32	6701.2	6238	7186	240	214438
74	9	POL	20	5914.5	5212	6159	243	118289

76	9	POL	16	5942.1	5054	6199	272	95074
66	10	POL	39	7210.3	5922	8173	464	281200
68	10	POL	32	7183.5	6594	7936	400	229872
74	10	POL	22	6112.7	5212	6831	477	134479
76	10	POL	17	6159.3	5567	6870	443	104708
66	15	ELP	7.1	7827.2	7383	8015	78	55426.9
68	15	ELP	6.6	7366.4	6436	7699	46340	48527.3
66	16	ELP	6.8	7097.5	6278	7620	138	48387.7
68	16	ELP	7.3	6849.8	5843	7304	158	49695.6
66	17	POL	21	6746.2	5804	7186	386	141670
68	17	POL	22	6189.8	5093	6633	350	136176
74	17	POL	27	4935.2	4382	5843	373	133251
76	17	POL	22	4339.5	3830	5528	485	95469
66	18	POL	27	6586.5	6199	7186	287	177835
68	18	POL	26	6130.4	5607	6475	194	159391
74	18	POL	23	4775.6	3830	5725	444	109839
76	18	POL	18	4410.9	3672	5251	448	79396
66	19	ELP	21.5	5162.2	4225	5725	329	111003.2
68	19	ELP	14.1	5388.2	4738	5725	0	75792.3
66	20	ELP	12.8	5629.5	4619	6278	276	71979.1
68	20	ELP	9.7	5164.4	4343	5922	85	50111.4
66	21	POL	49	4909.4	4422	5725	288	240559
68	21	POL	42	4883.5	4027	5843	351	205106
74	21	POL	44	4869.7	4304	5686	320	214268
76	21	POL	43	4492.7	3593	5922	576	193188
66	22	POL	32	5082.2	4304	5686	297	162631
68	22	POL	34	5120	4540	5607	290	174079

74	22	POL	45	4882.6	3988	5764	320	219718
76	22	POL	51	4651.1	3869	5488	356	237206
66	23	POL	47	6314.8	4777	7186	626	296796
68	23	POL	51	6079.6	4304	7107	600	310060
66	24	POL	45	6567.4	5488	7383	433	295531
68	24	POL	53	6339.7	5212	7147	460	336004
66	29	POL	69	6300.7	4343	8608	1108	434751
68	29	POL	49	6247.2	4619	8094	973	306115
74	29	POL	33	5145.9	4343	6159	536	169815
76	29	POL	49	4977.1	4146	6238	654	243879
66	30	POL	67	6824.7	5607	8055	655	457253
68	30	POL	79	6449.2	5449	7699	622	509490
74	30	POL	54	5449.4	4777	6554	401	294265
76	30	POL	47	5379	4304	6436	501	252811
66	31	POL	27	7529.7	6554	8055	397	203301
68	31	POL	22	7641.8	6752	7936	301	168120
74	31	POL	29	5805.4	4501	6870	606	168356
76	31	POL	23	4961	4343	5567	325	114103
66	32	POL	31	7872.6	7068	8608	395	244050
68	32	POL	23	7620.3	6910	8331	424	175268
74	32	POL	17	4965.5	4225	5922	493	84414
76	32	POL	27	4386.9	3632	5409	544	118447
66	33	POL	4	7038	6712	7383	239	28152
68	33	POL	4	5567	5330	5764	160	22268
66	34	POL	1	6712	999999	6712	0	6712
68	34	POL	1	6357	999999	6357	0	6357
66	35	POL	10	7047.7	6159	7857	630	70477

68	35	POL	14	6799.7	6357	7225	254	95196
74	35	POL	8	6500	6199	6752	170	52000
76	35	POL	10	6242.2	6199	6396	144	62422
66	36	POL	18	7420.7	6870	7818	269	133573
68	36	POL	14	6841.9	6633	7225	200	95787
74	36	POL	7	6012.6	5804	6199	133	42088
76	36	POL	8	6272.8	6120	6475	112	50182
82	41	POL	474	3849.8	2408	4817	431	1824806
84	41	POL	387	3587	2448	4461	487	1388161
82	42	POL	469	4163.1	2961	5172	421	1952494
84	42	POL	384	3898.5	3000	4817	321	1497034
74	43	POL	12	3819.8	3632	4304	258	45838
76	43	POL	6	3928.5	999999	4540	349	
74	44	POL	18	4226.8	3909	4698	220	76082
76	44	POL	10	3648	3356	4185	245	36480
74	51	POL	42	5375.3	4896	6159	375	225761
76	51	POL	59	4583.3	3909	5370	356	270412
74	52	POL	59	5376.3	4461	6238	390	317202
76	52	POL	68	4404	3356	5133	373	299470
82	63	ELP	7.3	4437.2	4343	4540	79	32505.8
82	63	ELP	7	4187.4	4027	4264	19	29426.8
84	63	ELP	7	4604.9	4501	4659	19	32104.2
84	63	ELP	7	4669.5	4580	4777	90	32536.4
82	95	POL	390	4637.1	3316	5725	508	1808488
84	95	POL	323	4536.5	3356	5212	305	1465280
82	96	POL	395	4491.6	2921	5686	526	1774166

84	96	POL	352	4181	2724	5133	487	1471718
66	101	POL	2271	5840.1	2448	8765	1295	13262788
68	101	POL	2351	5660.5	1895	8568	1178	13307922
74	101	POL	2064	5101.5	2685	7936	989	10529464
76	101	POL	1980	4850.6	2487	8134	990	9604109
66	102	POL	2149	6004.4	2645	9121	1263	12903548
68	102	POL	2109	5825.2	3000	8608	1109	12285398
74	102	POL	2030	5247.2	2764	8252	949	10651716
76	102	POL	1853	4990.2	2764	8410	1009	9246858

m28								
slice	volume	type	area	averg	min	max	std	count
122	1	POL	11	6868.8	6392	7300	252	75557
124	1	POL	6	6784.3	6594	7065	227	40706
130	1	POL	8	6257.1	5618	6661	296	50057
132	1	POL	9	5330	4609	6055	490	47970
122	2	POL	8	6046.6	5483	6324	273	48373
124	2	POL	9	6253.3	5551	6526	312	56280
130	2	POL	12	5755.2	4407	6594	644	69063
132	2	POL	7	5906.1	5046	6526	480	41343
122	3	POL	29	5471.8	4440	5887	356	158681
124	3	POL	25	5093.1	4373	5820	535	127327
130	3	POL	20	5503.5	5214	6425	348	110071
132	3	POL	17	5772.4	5517	6358	373	98130
122	4	POL	25	5355.4	4844	6055	281	133886
124	4	POL	26	5383.7	5012	5921	215	139975
130	4	POL	25	5398.6	4844	6223	457	134964
132	4	POL	24	5382.4	4979	6156	447	129177
122	5	POL	15	6499.3	5214	7132	583	97490
124	5	POL	21	6128.9	4979	7031	605	128707
130	5	POL	21	6625.6	5786	7031	307	139137
132	5	POL	21	6295.6	5012	6863	510	132208
122	6	POL	22	7101.3	6089	7636	404	156229
124	6	POL	25	7138.7	6560	7536	291	178467
130	6	POL	25	6816.8	6358	7165	230	170421
132	6	POL	22	6589	5954	7065	316	144959
122	9	POL	38	5771.9	4508	6594	580	219334
124	9	POL	39	5831.8	4508	6661	564	227440
130	9	POL	27	5725.1	4743	6459	501	154578

132	9	POL	20	5853.3	4945	6425	355	117066
122	10	POL	42	6219.5	5584	6997	460	261217
124	10	POL	40	6125.9	5349	6863	435	245036
130	10	POL	27	5955.6	5113	6526	381	160800
132	10	POL	20	6166.3	6089	6560	378	123326
122	15	ELP	7.1	6659.8	6123	6896	157	47535.4
124	15	ELP	7.1	6638.4	6156	6863	157	47041.7
122	16	ELP	7	6719.9	6493	6964	100	47080
124	16	ELP	7.5	6804.1	6560	6997	89	50717.8
122	17	POL	23	5822.7	5349	6997	515	133921
124	17	POL	32	5611.5	5281	6055	171	179568
130	17	POL	27	5107.1	4743	5954	308	137891
132	17	POL	24	5539.2	4844	7266	741	132941
122	18	POL	32	5161.6	4407	6257	543	165170
124	18	POL	28	5649.1	4642	6795	658	158175
130	18	POL	23	5546.2	4171	7065	899	127563
132	18	POL	21	5558.8	4070	7065	956	116734
122	19	ELP	22.5	5065.7	3801	5820	438	113862.3
124	19	ELP	17.1	5373.2	4911	5685	233	91819.8
122	20	ELP	18.8	4886.9	3969	5349	203	91999.3
124	20	ELP	20.1	4708	3397	5551	449	94706.2
122	21	POL	45	3917.1	3229	4407	302	176270
124	21	POL	49	3830.1	3229	4306	262	187675
130	21	POL	46	3531.3	2792	4205	287	162440
132	21	POL	43	3515.7	2691	4373	351	151174
122	22	POL	38	4009.2	3431	4474	256	152350
124	22	POL	41	3911.9	3465	4306	260	160389

130	22	POL	53	3942.7	3330	4339	300	208965
132	22	POL	51	4038	3229	4508	348	205938
122	23	POL	49	4352.5	3364	5012	393	213272
124	23	POL	67	4676.9	3868	5349	365	313350
122	24	POL	52	4990.3	3633	6022	659	259496
124	24	POL	53	5486.5	3700	6425	833	290785
122	29	POL	75	4973.3	3700	6829	857	372994
124	29	POL	62	5233.2	3431	6863	1044	324458
130	29	POL	40	5141	4306	6089	634	205640
132	29	POL	49	5002	3835	5921	602	245099
122	30	POL	73	4796.2	3801	5988	651	350124
124	30	POL	78	5037.3	3700	6156	776	392913
130	30	POL	56	5497.7	4205	6829	841	307872
132	30	POL	63	5375.5	4474	6829	761	338656
122	31	POL	27	6858.9	5752	7603	547	185190
124	31	POL	29	6509	5517	7401	466	188760
130	31	POL	29	6392.8	4575	7334	654	185391
132	31	POL	23	6442.9	5416	7266	447	148186
122	32	POL	31	6503.4	5517	6964	448	201606
124	32	POL	23	6625.7	6257	6964	213	152392
130	32	POL	22	6293.7	5584	6930	330	138462
132	32	POL	27	6386.6	5887	6863	299	172438
122	33	POL	4	6812.2	6661	7098	168	27249
124	33	POL	4	6644	6358	6863	199	26576
122	34	POL	5	4837.4	4642	5080	161	24187
124	34	POL	1	4878	999999	4878	0	4878
122	35	POL	10	6882.9	6055	7502	492	68829

124	35	POL	15	7239.5	6190	7906	506	108592
130	35	POL	10	7511.9	6627	8242	495	75119
132	35	POL	10	8050.1	7468	8309	249	80501
122	36	POL	20	5710.4	4844	6324	409	114208
124	36	POL	16	5741.9	5147	6257	358	91870
130	36	POL	8	6921.4	6661	7098	132	55371
132	36	POL	11	7040.1	6795	7401	321	77441
166	41	POL	500	3400.7	2691	4138	251	1700355
168	41	POL	511	3371.5	2792	4003	261	1722850
166	42	POL	534	3748.8	2523	4609	406	2001873
168	42	POL	444	3744.5	2758	4508	391	1662551
130	43	POL	12	4611.4	4306	4945	212	55337
132	43	POL	11	4489.3	4070	4844	242	49382
130	44	POL	18	5255.3	4373	5551	299	94596
132	44	POL	12	4914.1	4575	5113	171	58969
130	51	POL	55	4191.4	3498	5315	380	230528
132	51	POL	60	4285.6	3397	4878	272	257138
130	52	POL	74	5084.2	3868	6392	571	376229
132	52	POL	75	4873.6	3868	6055	502	365523
166	63	ELP	7.6	4238.3	4003	4440	0	32015.9
168	63	ELP	12.9	4005.7	3599	4339	71	51865.7
166	64	ELP	8.1	4209.4	3835	4508	94	34208.6
168	64	ELP	6.9	4287.1	3768	4743	244	29502.4
166	95	POL	293	3809	2523	4878	510	1116034
168	95	POL	169	3769.9	2388	4474	386	637119

166	96	POL	272	4135.3	2691	5281	599	1124795
168	96	POL	211	4075.9	2590	5113	582	860010
122	101	POL	2102	4915.9	2287	7603	1246	10333316
124	101	POL	2161	4910.1	1984	7906	1258	10610753
130	101	POL	1988	4872.8	2321	8309	1161	9687138
132	101	POL	1994	4801.4	2556	8309	1115	9574070
122	102	POL	2240	4788.1	1783	7636	1169	10725301
124	102	POL	2166	4811.4	1682	7536	1195	10421587
130	102	POL	2251	4709.6	2287	7771	1152	10601394
132	102	POL	2299	4650.7	2321	7771	1120	10691983

K16								
slice	volume	type	area	averg	min	max	std	count
74	1	POL	11	6015.9	5648	6212	165	66175
76	1	POL	6	6007.5	5913	6146	114	36045
82	1	POL	8	6042	5581	6478	348	48336
84	1	POL	8	5859.4	5182	6677	537	46875
90	1	POL	524	3886.5	2524	5083	605	2036516
74	2	POL	9	5920.8	5182	6146	307	53287
76	2	POL	9	6112.7	5548	6312	220	55014
82	2	POL	8	6162.5	5814	6345	178	49300
84	2	POL	9	5939.2	5581	6246	228	53453
90	2	POL	599	4395.4	2990	5348	522	2632874
74	3	POL	29	4770	3588	5249	455	138330
76	3	POL	25	5069.4	3787	5947	547	126735
82	3	POL	24	4847.4	4618	5847	259	116337
84	3	POL	21	4245.8	3953	4983	365	89162
74	4	POL	33	5385.7	4850	6478	389	177729
76	4	POL	33	5554.8	5216	6279	508	183308
82	4	POL	25	5292.7	4784	5947	342	132317
84	4	POL	24	4591.3	3554	5714	632	110191
74	5	POL	15	5477	4352	6146	506	82155
76	5	POL	15	5147	3754	5880	612	77205
82	5	POL	20	5336.9	4651	5780	301	106737
84	5	POL	24	3971.2	2790	4684	538	95309
74	6	POL	22	6574.8	5880	7043	242	144645
76	6	POL	25	6648.3	5581	7010	314	166207
82	6	POL	25	5812.4	5216	6113	235	145310
84	6	POL	27	4518	3621	5083	388	121987
74	9	POL	47	6566.5	4817	7076	456	308624

76	9	POL	39	5765.1	4020	6777	711	224838
82	9	POL	31	5398.9	4451	6113	408	167365
84	9	POL	22	5312.4	4086	6013	517	116873
74	10	POL	48	6383.9	4584	7275	582	306429
76	10	POL	46	5863.5	4850	7043	562	269721
82	10	POL	27	5213.1	4717	5913	274	140753
84	10	POL	20	5064.5	4518	5282	175	101289
74	15	ELP	10	6023.7	5581	6312	140	60337.8
76	15	ELP	7.1	6039	5548	6378	82	43175.1
74	16	ELP	7.5	5928.9	5681	6113	168	44474.5
76	16	ELP	12	5945.3	5216	6345	100	71457.3
74	17	POL	23	5455.3	4717	5880	382	125473
76	17	POL	32	5728.6	5016	6113	285	183315
82	17	POL	28	4703	4186	5681	398	131683
84	17	POL	24	4162.1	3621	5016	418	99890
74	18	POL	32	6098.2	5448	6943	440	195141
76	18	POL	28	6389.1	5714	6844	348	178896
82	18	POL	25	5401.6	4917	5880	227	135041
84	18	POL	23	4822.7	4285	5348	284	110921
74	19	ELP	25.9	4302.2	3554	4684	219	111364
76	19	ELP	17.6	4404.2	4053	4584	131	77697.9
74	20	ELP	20.9	4458.9	3621	5016	318	93197.8
76	20	ELP	21.6	4578.7	4020	5083	201	98833.8
74	21	POL	48	4241.8	2325	5481	794	203608
76	21	POL	49	4750.4	3322	5681	532	232770
82	21	POL	53	4895.9	3787	5581	438	259483
84	21	POL	48	4537.3	3156	5315	553	217789

74	22	POL	44	5011	4119	5614	313	220483
76	22	POL	42	5031.2	4418	5614	295	211312
82	22	POL	62	4310.6	3123	5282	455	267257
84	22	POL	60	4472.5	3687	5016	307	268350
74	23	POL	58	5812.5	4584	6877	678	337125
76	23	POL	67	5619.7	4850	6711	496	376522
74	24	POL	54	6056.6	4917	6810	610	327055
76	24	POL	57	5986.8	4950	6711	509	341245
74	29	POL	72	5462.5	3422	7010	1085	393299
76	29	POL	61	5682.3	3687	7242	1214	346621
82	29	POL	49	5239.4	3986	6113	585	256730
84	29	POL	50	4458.1	3488	5415	506	222904
74	30	POL	83	5768	4684	6910	605	478742
76	30	POL	94	5727.4	4186	7143	780	538375
82	30	POL	70	5479	4485	6312	386	383531
84	30	POL	67	5218.5	4717	5648	225	349640
74	31	POL	30	5983.1	4385	6844	726	179492
76	31	POL	36	5932.7	4252	6711	829	213576
82	31	POL	32	4928	4086	5714	359	157696
84	31	POL	27	4391	3820	4983	384	118558
74	32	POL	31	6836	5049	8040	932	211917
76	32	POL	32	7529.8	6810	8172	426	240952
82	32	POL	27	5881.3	4817	6412	375	158794
84	32	POL	27	5355.8	4418	6179	462	144606
74	33	POL	4	4833.5	4750	4950	76	19334
76	33	POL	4	5655.8	5548	5780	108	22623
74	34	POL	2	5016	4883	5149	132	10032
76	34	POL	1	5980	999999	5980	0	5980

74	35	POL	14	5248.8	4618	5614	275	73483
76	35	POL	15	6055	4950	6478	488	90825
82	35	POL	19	5734.9	4983	6079	295	108963
84	35	POL	10	5232.3	4750	5648	284	52323
74	36	POL	20	5775.5	5049	6312	342	115509
76	36	POL	16	6461.5	5814	6877	282	103384
82	36	POL	16	6052.4	5282	6478	327	96839
84	36	POL	11	5408.9	5083	5581	162	59498
88	41	POL	525	4493.5	2159	5681	713	2359101
88	42	POL	588	4917.1	3455	5747	475	2891240
82	43	POL	17	3916.1	3422	4385	260	66574
84	43	POL	13	4088.5	3887	4252	133	53151
82	44	POL	21	4537	4086	4883	236	95276
84	44	POL	14	4404.1	4219	4618	142	61657
82	51	POL	66	5751.8	4883	6113	263	379617
84	51	POL	62	5466.4	4319	6079	413	338916
82	52	POL	75	5826	4750	6578	427	436951
84	52	POL	83	5657.6	4418	6312	434	469577
88	63	ELP	6.9	3411.4	2657	3887	216	23704.3
90	63	ELP	6.9	3424	2757	3754	174	23791.5
88	64	ELP	10.4	3862.4	3721	3953	64	40140.7
90	64	ELP	10.4	3545.4	3289	3654	50	36846.3
88	95	POL	469	4484.3	2857	5847	685	2103144
90	95	POL	469	4427.5	2591	5847	665	2076507

88	96	POL	579	4374.4	2824	6279	790	2532772
90	96	POL	510	4207.5	2890	5382	671	2145816
74	101	POL	2146	4916.2	2059	7076	1140	10550114
76	101	POL	2265	4953.4	2192	7242	1121	11219353
82	101	POL	2171	4801.9	2392	7109	869	10425009
84	101	POL	2124	4620.2	2225	6677	937	9813292
74	102	POL	2219	5134.7	1926	8040	1265	11393985
76	102	POL	2192	5160.4	2225	8172	1249	11311502
82	102	POL	2130	4802.3	2292	6611	881	10228916
84	102	POL	2127	4661.3	2358	6644	887	9914687

m18								
slice	volume	type	area	averg	min	max	std	count
70	1	POL	9	4097.2	3782	4439	218	36875
72	1	POL	5	3929	3756	4176	164	19645
78	1	POL	8	4517.4	4255	4833	215	36139
80	1	POL	7	4513.7	4307	4728	128	31596
70	2	POL	8	4635.5	4228	4780	170	37084
72	2	POL	4	4944.2	4780	5043	99	19777
78	2	POL	8	4691.5	4334	5069	238	37532
80	2	POL	8	4872.1	4517	5043	164	38977
70	3	POL	27	4392.9	3782	4833	312	118609
72	3	POL	25	4461.7	3913	4938	327	111543
78	3	POL	20	4694.7	4386	5227	263	93894
80	3	POL	21	4084.7	3782	4675	302	85778
70	4	POL	33	4506.3	3782	5227	390	148708
72	4	POL	27	4694.4	3940	5174	325	126750
78	4	POL	21	4453.6	3651	4885	346	93526
80	4	POL	24	3915.5	3046	4465	413	93972
70	5	POL	12	4502	4202	4911	300	54024
72	5	POL	12	4876.4	4517	5122	185	58517
78	5	POL	23	4239.9	3834	4570	178	97517
80	5	POL	23	3583.3	3204	3940	215	82415
70	6	POL	15	5058.4	4701	5516	246	75876
72	6	POL	20	5154.5	4833	5437	180	103089
78	6	POL	19	4516	3966	4911	242	85804
80	6	POL	22	4215.4	3808	4465	166	92738
70	9	POL	38	4498.7	3362	5305	438	170949
72	9	POL	30	4348.4	3624	5043	354	130452
78	9	POL	30	4057.7	3335	4544	319	121731

80	9	POL	14	4020.3	3546	4439	260	56284
70	10	POL	46	4860.1	3624	5384	361	223563
72	10	POL	38	4943.9	4465	5332	223	187868
78	10	POL	27	4657.5	4018	4990	216	125752
80	10	POL	20	4535.9	4176	4754	163	90717
70	15	ELP	6.5	5170.6	4885	5384	105	33759.6
72	15	ELP	7.1	5110.1	4649	5358	184	36379.6
70	16	ELP	7.2	5060.3	4701	5410	118	36450.9
72	16	ELP	7.3	5032.2	4806	5200	66	36912.4
70	17	POL	21	4628.7	4018	4990	239	97202
72	17	POL	22	4682.2	4045	5148	318	103008
78	17	POL	27	3642.9	3073	4018	240	98357
80	17	POL	24	3373.7	2915	3808	186	80968
70	18	POL	30	4637.3	4018	5200	306	139118
72	18	POL	26	4594.2	4071	5148	300	119449
78	18	POL	21	4084.6	3651	4596	330	85777
80	18	POL	20	3563.9	3152	3966	228	71278
70	19	ELP	25.4	4039.5	3546	4544	155	102672.7
72	19	ELP	16.4	4179.2	3546	4570	207	68446.9
70	20	ELP	20	4013.5	3283	4439	242	80312.8
72	20	ELP	20.1	3960.4	3178	4307	215	79573
70	21	POL	39	4049.3	3152	4990	499	157922
72	21	POL	42	3965.8	2889	4806	502	166562
78	21	POL	49	4082.7	3467	4649	282	200050
80	21	POL	42	3971.3	3309	4491	264	166796
70	22	POL	32	4103.8	3519	4517	256	131322
72	22	POL	29	4081.8	3808	4439	173	118372

78	22	POL	59	4217.8	3677	4964	286	248852
80	22	POL	51	4298.5	3992	4570	161	219222
70	23	POL	54	4914.8	3887	5516	417	265401
72	23	POL	62	4462.3	3519	5095	373	276663
70	24	POL	47	4768.9	3887	5594	475	224136
72	24	POL	53	4691.8	3887	5148	359	248666
70	29	POL	43	3888.8	2784	4885	492	167218
72	29	POL	56	4217.7	3283	5122	408	236192
78	29	POL	40	4133.9	3414	4596	285	165356
80	29	POL	51	4042.5	3493	4491	227	206168
70	30	POL	76	4654.3	3756	5358	399	353725
72	30	POL	85	4768.6	3861	5279	327	405333
78	30	POL	54	4582.6	3966	5174	251	247458
80	30	POL	61	4661.6	4045	5305	261	284359
70	31	POL	22	4623.7	3624	5542	598	101721
72	31	POL	34	4627.9	3651	5227	480	157347
78	31	POL	23	4158.8	3519	4570	242	95652
80	31	POL	26	3786	3335	4176	206	98435
70	32	POL	22	5246.9	4806	5962	275	115431
72	32	POL	31	5271.5	4833	5831	240	163417
78	32	POL	23	4887.4	4071	5384	303	112410
80	32	POL	23	4768.6	4228	5279	285	109678
70	33	POL	2	5016.5	4990	5043	26	10033
72	33	POL	4	5220	5043	5384	132	20880
70	34	POL	2	3900	3782	4018	118	7800
72	34	POL	3	4806	4622	4911	130	14418
70	35	POL	11	4942.4	4386	5253	277	54366

72	35	POL	10	5405.2	4938	5516	160	54052
78	35	POL	17	4665.8	4202	4911	185	79318
80	35	POL	8	4248	4123	4307	72	33984
70	36	POL	18	4635.7	3940	4938	233	83442
72	36	POL	12	5598.8	4622	6041	392	67185
78	36	POL	14	5010.8	4097	5437	370	70151
80	36	POL	11	4488.7	4360	4596	72	49376
90	41	POL	502	3014.8	1891	3729	364	1513409
92	41	POL	403	3077	2153	3677	284	1240020
90	42	POL	504	3243.6	2022	3966	338	1634765
92	42	POL	412	3188.7	2469	3966	302	1313726
78	43	POL	11	4018.4	3808	4228	147	44202
80	43	POL	8	3384.6	3913	3966	383	27077
78	44	POL	19	4149.5	3414	4622	351	78840
80	44	POL	14	4206.1	4045	4439	165	58885
78	51	POL	57	4592	3913	5174	310	261746
80	51	POL	60	4150.5	2810	4833	480	249030
78	52	POL	67	4552.3	3362	5069	324	305004
80	52	POL	74	4343.5	3257	4885	356	321416
90	63	ELP	7.9	3466.5	3020	3651	171	27423.7
92	63	ELP	7.4	3146.5	2941	3283	13	23227.4
90	64	ELP	7.1	3621.9	3572	3651	65	25688.1
92	64	ELP	7.1	3256.4	3152	3335	0	23245
90	95	POL	283	3358.1	2258	4255	398	950355
92	95	POL	198	3085.6	2075	3729	363	610948

90	96	POL	331	3312.5	1917	4018	410	1096444
92	96	POL	201	3207	2232	3808	361	644616
70	101	POL	2041	4025.6	1838	6120	899	8216252
72	101	POL	1998	4011.7	1654	6120	819	8015341
78	101	POL	1984	3955.5	1943	5227	599	7847785
80	101	POL	1968	3794.7	2206	5122	588	7468029
70	102	POL	1950	4109.7	1812	5962	910	8013847
72	102	POL	2008	4078.6	1917	6067	895	8189840
78	102	POL	1979	4112.9	1970	5857	635	8139496
80	102	POL	1923	3997	2127	5332	579	7686373

I99								
slice	volume	type	area	averg	min	max	std	count
72	1	POL	12	7037	6615	7452	249	84444
74	1	POL	11	7340.1	6655	7691	303	80741
76	1	POL	5	7572	7134	7851	244	37860
82	1	POL	12	7076.9	6376	7891	462	84923
84	1	POL	8	7507.1	7054	8010	375	60057
72	2	POL	10	7129.7	6137	7931	526	71297
74	2	POL	8	8010.1	7612	8329	259	64081
76	2	POL	8	7970.6	7413	8489	403	63765
82	2	POL	15	7369.9	6536	8289	527	110548
84	2	POL	9	7988.1	7452	8568	363	71893
72	3	POL	26	6862.2	6576	7333	278	178418
74	3	POL	29	6761.1	5539	7811	560	196072
76	3	POL	23	6502.8	5579	7532	561	149564
82	3	POL	16	6652.7	6177	7333	346	106443
84	3	POL	21	6402.8	6097	7492	600	134459
72	4	POL	21	6530	5938	7293	304	137130
74	4	POL	27	7321	6137	8608	787	197667
76	4	POL	27	7766.9	6695	9166	821	209705
82	4	POL	24	7258.2	6496	8170	434	174196
84	4	POL	24	7128.5	6815	8249	587	171083
72	5	POL	47	8123	6615	9445	645	381783
74	5	POL	8	8289.2	7811	8927	424	66314
76	5	POL	15	8297.2	7652	9286	533	124458
82	5	POL	17	7991.4	7333	8568	308	135854
84	5	POL	25	7565.6	6297	8090	481	189139
72	6	POL	50	8334.7	6177	9365	582	416737
74	6	POL	22	8751.3	8210	9365	346	192529
76	6	POL	21	8752.4	7771	9166	347	183800

82	6	POL	21	8057.8	7492	8728	317	169214
84	6	POL	23	8310	7492	8887	400	191130
72	7	POL	15	6634.1	5978	6974	292	99511
72	8	POL	10	5993.8	5739	6297	197	59938
72	9	POL	38	6507.4	5340	7691	615	247281
74	9	POL	43	7265.2	5619	7931	501	312402
76	9	POL	39	6804.5	5380	7572	551	265376
82	9	POL	22	6443.3	5340	7293	631	141752
84	9	POL	22	6541.1	4663	8170	877	143905
72	10	POL	33	5662.5	5220	6496	314	186861
74	10	POL	46	5511.5	4942	6097	264	253531
76	10	POL	49	5180.6	4902	5659	186	253850
82	10	POL	27	4351.1	4105	4742	169	117479
84	10	POL	19	4398.3	4025	5061	248	83567
72	13	POL	7	5072.4	4503	5539	337	35507
72	14	POL	10	4961.4	4423	5619	379	49614
72	15	ELP	5.7	6165.2	4942	6695	46340	35341.8
74	15	ELP	7.1	5965.8	5181	6576	218	42494
76	15	ELP	7.1	6599	5579	7253	378	47032.2
72	16	ELP	4.4	6809.9	6615	7014	46340	29658.7
74	16	ELP	7.4	7019.3	6775	7213	178	51823.5
76	16	ELP	7.5	7389.2	7134	7771	258	55573.5
72	17	POL	22	6287.5	5739	6815	339	138326
74	17	POL	20	6360.4	5141	7014	572	127207
76	17	POL	27	6547.5	5181	7333	581	176783
82	17	POL	17	5600.3	5141	6376	364	95205
84	17	POL	19	5625.4	4105	6735	933	106882

72	18	POL	31	5774.6	4663	6416	345	179013
74	18	POL	20	5981.8	4344	6775	731	119635
76	18	POL	15	6655.3	5499	7572	595	99829
82	18	POL	25	5913.9	3865	7173	876	147848
84	18	POL	23	5078.5	2710	6855	1425	116805
72	19	ELP	38.3	6716.4	5460	7652	506	257231
74	19	ELP	27.7	7145.2	6217	7572	283	197606.3
76	19	ELP	17.3	6868.3	6376	7173	190	118748
72	20	ELP	44.9	6177.1	5061	6855	366	277229.5
74	20	ELP	20.1	6153.9	5260	7173	307	123907.2
76	20	ELP	20.7	5551	4981	6018	189	114926.2
72	21	POL	44	4353.7	3746	5101	355	191562
74	21	POL	45	4226.8	3865	4782	186	190205
76	21	POL	45	4240.9	3865	5061	297	190839
82	21	POL	53	4596.3	3626	5659	442	243606
84	21	POL	38	5161.7	3985	5978	467	196145
72	22	POL	38	3624.2	2749	4782	465	137718
74	22	POL	36	4072.4	3467	4543	315	146607
76	22	POL	43	4014.6	3467	4702	323	172628
82	22	POL	62	4299.3	3626	5061	342	266558
84	22	POL	57	4944.3	4105	5778	477	281826
72	23	POL	18	5957.9	5300	6576	444	107242
74	23	POL	54	5857.4	4981	6336	301	316297
76	23	POL	67	5924.7	5021	6735	395	396956
72	24	POL	19	4750.6	4144	5340	372	90261
74	24	POL	38	4840.8	3746	5659	601	183951
76	24	POL	57	4948.5	3945	5858	561	282063
72	25	POL	12	5343.5	5739	5739	359	64122

72	26	POL	10	5228.5	4663	5579	270	52285
72	29	POL	52	6272.8	4902	7054	574	326188
74	29	POL	75	6071.8	4981	7253	536	455384
76	29	POL	53	5950.6	3905	7014	812	315382
82	29	POL	48	5883.1	3945	7134	868	282389
84	29	POL	49	6047.7	4463	7014	619	296337
72	30	POL	55	3590.7	3028	4623	384	197491
74	30	POL	78	3936.4	3068	4862	489	307041
76	30	POL	89	4261.3	3347	5579	465	379258
82	30	POL	65	5278.1	4025	6336	591	343079
84	30	POL	63	5242.7	4344	6018	427	330287
72	31	POL	17	7271.9	6815	7771	312	123622
74	31	POL	30	7214.6	6257	7931	480	216438
76	31	POL	33	8326.7	7492	9485	564	274782
82	31	POL	32	6773.6	5021	7970	690	216754
84	31	POL	27	6873.7	5659	8090	639	185591
72	32	POL	12	7821	7492	8170	196	93852
74	32	POL	31	8050.1	7253	8608	324	249554
76	32	POL	32	7859.6	6894	8249	353	251508
82	32	POL	29	7655.7	7173	8130	265	222016
84	32	POL	27	6865	5978	7413	373	185354
72	33	POL	7	4935.7	4583	5300	268	34550
74	33	POL	4	5798.8	5460	6018	234	23195
76	33	POL	5	5603	5300	6097	307	28015
72	34	POL	5	6248.8	5978	6536	205	31244
74	34	POL	2	6356.5	6297	6416	59	12713
76	34	POL	3	5552.7	5420	5739	135	16658
72	35	POL	22	5356.4	4423	6097	498	117840

74	35	POL	16	6607.9	5739	7213	410	105727
76	35	POL	16	7153.3	5619	7970	747	114453
82	35	POL	14	7452.4	7014	7731	195	104334
84	35	POL	10	6715.1	6297	6974	211	67151
72	36	POL	11	6850.9	6336	7094	220	75360
74	36	POL	20	7288.9	6217	7771	465	145778
76	36	POL	14	7495.1	6416	8369	581	104931
82	36	POL	17	6885.1	6416	7173	227	117047
84	36	POL	11	6064.6	5778	6257	146	66711
94	41	POL	503	4254.9	2749	5579	546	2140198
96	41	POL	426	4238.7	2789	5499	481	1805699
94	42	POL	497	4697.7	3547	6137	617	2334733
96	42	POL	412	4612.1	3387	5778	536	1900205
82	43	POL	28	5607.6	4663	6217	407	157013
84	43	POL	13	5091.7	4742	5380	196	66192
82	44	POL	31	5811.9	4702	6456	389	180168
84	44	POL	14	5416.9	5141	5739	196	75837
82	51	POL	66	5767	4742	6615	572	380622
84	51	POL	62	5550.8	4184	6376	641	344152
82	52	POL	75	5161	4264	6057	465	387072
84	52	POL	80	5484	4304	6336	642	438721
94	63	ELP	7.7	5262.3	5101	5539	139	40393.9
96	63	ELP	7.5	4610.6	4384	4782	90	34607
94	64	ELP	7.3	5235.6	4822	5619	193	37996.5
96	64	ELP	7.4	4348.1	4224	4543	69	32199.8
94	95	POL	352	4885.1	2749	6137	689	1719567

96	95	POL	229	4677.5	3387	5699	519	1071144
94	96	POL	350	3703.7	2351	4981	547	1296308
96	96	POL	254	3592.1	2590	4543	443	912387
72	101	POL	2416	5158.9	1076	9923	1713	12463946
74	101	POL	2415	5323.5	1155	9724	1665	12856373
76	101	POL	2521	5442.6	1873	9724	1562	13720875
82	101	POL	2304	5507.3	3307	8728	1113	12688808
84	101	POL	2230	5555.9	3347	8409	1108	12389622
72	102	POL	2273	5199.3	2510	9804	1431	11818010
74	102	POL	2328	5322.7	2590	9365	1477	12391254
76	102	POL	2253	5472.8	2550	9605	1515	12330265
82	102	POL	2259	5387	2630	9126	1288	12169245
84	102	POL	2180	5339.7	2311	9326	1322	11640551

K09								
slice	volume	type	area	averg	min	max	std	count
122	1	POL	11	4141.6	3811	4320	144	45558
124	1	POL	11	4169.5	3811	4320	151	45864
138	1	POL	11	3843.7	3481	4015	152	42281
140	1	POL	11	3848.3	3456	4015	162	42331
122	2	POL	8	3970.1	3862	4091	78	31761
124	2	POL	8	3938.4	3862	3989	38	31507
138	2	POL	9	4184	4015	4421	139	37656
140	2	POL	9	3989.3	3786	4345	208	35904
122	3	POL	27	3360.5	2947	3811	310	90733
124	3	POL	27	3386.9	2947	3888	328	91446
138	3	POL	19	3263	3024	3684	303	61997
140	3	POL	19	3109	2795	3557	340	59071
122	4	POL	33	3497	2846	4065	326	115402
124	4	POL	33	3548.1	2795	4167	353	117086
138	4	POL	18	3277.7	2490	3964	437	58998
140	4	POL	18	3094.1	2261	3888	471	55693
122	5	POL	15	4206.1	3786	4574	249	63091
124	5	POL	15	4258.5	3862	4548	203	63877
138	5	POL	18	3450	2541	4218	491	62100
140	5	POL	18	3126.6	2287	3837	439	56278
122	6	POL	22	4298.8	3811	4599	261	94573
124	6	POL	22	4318.4	3811	4675	250	95004
138	6	POL	18	4024.5	3659	4320	178	72441
140	6	POL	18	3730.7	3227	4192	270	67153
122	9	POL	37	3542.1	2210	4472	590	131056
124	9	POL	37	3535.2	2236	4345	596	130804
138	9	POL	17	3981.7	3583	4218	149	67689
140	9	POL	17	4055.1	3760	4320	161	68936

122	10	POL	46	4459.3	3405	4904	332	205129
124	10	POL	46	4350	3430	4853	317	200098
138	10	POL	18	3975.1	3557	4091	121	71551
140	10	POL	18	3921.4	3506	4091	118	70586
122	15	ELP	7.2	3947.6	3684	4192	153	28295.7
124	15	ELP	7.2	4088.6	3837	4243	120	29306.5
122	16	ELP	7.3	4468.1	4320	4574	92	32544.1
124	16	ELP	7.3	4522	4370	4624	72	32936.8
122	17	POL	19	3943.6	3506	4192	217	74929
124	17	POL	19	4065.3	3710	4370	220	77241
138	17	POL	19	4248.5	3760	4726	300	80722
140	17	POL	19	4046.5	3506	4523	337	76884
122	18	POL	17	4464.5	4294	4726	125	75896
124	18	POL	17	4415.2	4218	4675	138	75059
138	18	POL	24	4191.4	3633	4650	324	100593
140	18	POL	24	4073.9	3608	4574	272	97774
122	19	ELP	28.4	3601	2896	3913	211	102271.8
124	19	ELP	28.4	3682.6	3176	3913	148	104591.5
122	20	ELP	19.6	3485.1	2998	3710	171	68391.9
124	20	ELP	19.6	3524	3024	3735	181	69155.9
122	21	POL	44	3660.5	2947	4015	300	161064
124	21	POL	44	3666.9	2998	3989	253	161345
138	21	POL	40	3334.2	3024	3557	104	133367
140	21	POL	40	3277	3024	3659	128	131081
122	22	POL	35	3930.5	3659	4192	120	137566
124	22	POL	35	3805.5	3608	3938	91	133194
138	22	POL	49	3376.7	2896	3862	243	165460

140	22	POL	49	3283.3	2896	3786	242	160884
122	23	POL	56	4343.6	3837	4955	269	243243
124	23	POL	56	4294.2	3710	4955	268	240473
122	24	POL	45	4296.4	3633	4624	226	193339
124	24	POL	45	4296.4	3659	4650	226	193339
122	29	POL	63	3637.9	2973	4269	319	229185
124	29	POL	63	3620.1	2998	4269	292	228067
138	29	POL	41	3969.3	3252	4599	467	162741
140	29	POL	41	3966.9	3303	4497	387	162643
122	30	POL	74	3966.8	2896	4574	433	293546
124	30	POL	74	3983.4	2922	4828	481	294768
138	30	POL	63	3881.9	3430	4777	365	244559
140	30	POL	63	3854.9	3354	4624	299	242856
122	31	POL	26	4356.6	3608	4802	337	113271
124	31	POL	26	4414.2	3633	4904	375	114769
138	31	POL	30	3621.5	2769	4599	511	108646
140	31	POL	30	3411.5	2566	4345	474	102344
122	32	POL	28	4382.1	3735	4752	279	122700
124	32	POL	28	4387.6	3837	4701	236	122852
138	32	POL	17	4430.1	4192	4675	135	75311
140	32	POL	17	4297.1	3913	4675	208	73051
122	33	POL	4	3659	3659	3659	0	14636
124	33	POL	4	3697	3583	3837	90	14788
122	34	POL	1	3684	999999	3684	0	3684
124	34	POL	2	4459	4421	4497	38	8918
122	35	POL	15	3655.3	3557	3735	62	54830
124	35	POL	15	3970.5	3786	4116	104	59558

138	35	POL	19	4850.5	4548	5133	244	92160
140	35	POL	19	4758.3	4548	4955	163	90408
122	36	POL	13	3965.7	3735	4243	152	51554
124	36	POL	18	4552.5	4269	4726	118	81945
138	36	POL	13	4329.2	4192	4574	116	56280
140	36	POL	13	4344.9	4091	4447	99	56484
168	41	POL	352	2719.7	2160	3430	241	957328
170	41	POL	352	2620.4	1804	3074	235	922381
168	42	POL	361	2732.5	2236	3151	188	986415
170	42	POL	361	2672.4	2083	3049	177	964739
138	43	POL	10	3338.6	3201	3481	84	33386
140	43	POL	10	3348.8	3252	3430	59	33488
138	44	POL	16	3420.6	3151	3710	162	54730
140	44	POL	16	3474.6	3125	3913	238	55594
138	51	POL	60	3942.2	3583	4345	159	236533
140	51	POL	60	3986.2	3608	4472	173	239172
138	52	POL	64	3954.2	3303	4650	311	253071
140	52	POL	64	3905.4	3405	4497	273	249945
168	63	ELP	6.5	3302.5	3074	3481	102	21587.8
170	63	ELP	6.5	3267.2	3125	3379	76	21357.2
168	64	ELP	7.3	3186.5	2973	3405	116	23353.3
170	64	ELP	7.3	3265.7	3125	3328	76	23933.8
168	95	POL	240	3086.7	2287	3786	334	740814
170	95	POL	240	2932.7	2007	3938	427	703839
168	96	POL	192	2961.3	2261	3557	327	568573

170	96	POL	192	2785.4	1905	3481	408	534801
122	101	POL	2036	3552.7	1728	5006	670	7233315
124	101	POL	2036	3573.6	1575	5006	653	7275891
138	101	POL	2084	3564	1880	5209	614	7427434
140	101	POL	2084	3556.5	1728	5006	580	7411787
122	102	POL	1952	3693.1	1931	4955	662	7208878
124	102	POL	2022	3681.5	1905	4853	649	7443973
138	102	POL	2030	3714.6	1829	5844	623	7540677
140	102	POL	2030	3734.8	1651	6251	664	7581638

K67

slice	volume	type	area	averg	min	max	std	count
70	1	POL	6	5452.5	5253	5609	159	32715
72	1	POL	9	5941	5707	6226	163	53469
76	1	POL	11	5966.2	5609	6226	199	65628
78	1	POL	8	5832.2	5577	6063	158	46658
70	2	POL	9	5742.8	5545	5901	136	51685
72	2	POL	8	5998.6	5707	6226	184	47989
76	2	POL	14	5537.6	5058	6128	341	77526
78	2	POL	8	6168.9	6063	6226	55	49351
70	3	POL	25	5394.2	4604	6453	489	134856
72	3	POL	24	5537.8	4864	6809	649	132908
76	3	POL	20	5679	5609	6290	338	113581
78	3	POL	21	5069	4410	5836	588	106450
70	4	POL	29	5707.9	5318	6096	262	165528
72	4	POL	27	5784.7	5285	6128	296	156187
76	4	POL	20	5192.8	4766	5804	497	103856
78	4	POL	24	4782.5	4410	5577	604	114780
70	5	POL	15	6439.6	5804	7101	486	96594
72	5	POL	13	6417.7	5545	6939	423	83430
76	5	POL	21	6182.3	4961	6809	528	129828
78	5	POL	24	5893.2	5026	6226	310	141437
70	6	POL	16	6270.1	5642	6647	328	100322
72	6	POL	19	6288.7	5577	6550	278	119486
76	6	POL	21	6106.7	5577	6388	238	128241
78	6	POL	23	5637.6	4831	6063	349	129664
70	9	POL	33	5440.5	3794	6258	513	179535
72	9	POL	43	5676.6	4637	6615	379	244092
76	9	POL	30	4702.6	3372	5545	538	141077

78	9	POL	21	5033.4	4085	5934	456	105701
70	10	POL	44	5790	4345	6420	477	254762
72	10	POL	44	5942.5	4734	6485	393	261472
76	10	POL	24	5791.8	5318	6290	277	139004
78	10	POL	15	5550.9	5091	6128	340	83264
70	15	ELP	7.1	5772.8	5674	5901	99	41141.3
72	15	ELP	6.5	6075.1	5966	6128	16	39728.6
70	16	ELP	7.4	5335.9	5220	5447	87	39350.4
72	16	ELP	7.2	5481.2	5091	5836	223	39704.1
70	17	POL	30	5737	5415	5966	125	172111
72	17	POL	19	6042.9	5772	6290	158	114815
76	17	POL	24	5909.4	5350	6226	217	141826
78	17	POL	24	5587.8	5188	6193	274	134108
70	18	POL	27	5448.4	5123	5934	246	147108
72	18	POL	30	5746.7	5318	6258	266	172402
76	18	POL	24	5432.5	5188	6063	253	130380
78	18	POL	25	5130.8	4766	5512	178	128270
70	19	ELP	16.5	4535.8	4312	4701	48	74750.3
72	19	ELP	26.6	4396	3891	4539	137	117134.6
70	20	ELP	20.3	4338.1	3988	4572	112	88110.9
72	20	ELP	19.3	4343.1	3858	4701	175	83784.9
70	21	POL	43	4476	3567	5026	377	192467
72	21	POL	39	4596.7	4150	4831	142	179271
76	21	POL	44	4301.2	3469	4928	340	189253
78	21	POL	38	4378.9	3567	4961	342	166398
70	22	POL	34	4926.5	4410	5447	254	167502
72	22	POL	36	4821.2	3858	5318	366	173564

76	22	POL	55	4903.7	4021	5350	353	269704
78	22	POL	51	4974.8	4118	5480	327	253716
70	23	POL	62	5805.1	4637	6420	376	359917
72	23	POL	54	5785.9	5058	6355	348	312440
70	24	POL	45	5750.7	4410	6323	540	258780
72	24	POL	51	5734.1	5026	6420	400	292440
70	29	POL	63	5579.6	4410	6712	570	351513
72	29	POL	62	5381.4	3891	6615	708	333645
76	29	POL	43	4960.9	3567	5901	663	213317
78	29	POL	54	4753.1	3437	5804	587	256666
70	30	POL	84	5474.3	4215	6193	471	459841
72	30	POL	79	5460.4	4312	6193	411	431375
76	30	POL	68	5804.5	4799	6680	476	394703
78	30	POL	61	5671.6	4831	6355	368	345969
70	31	POL	33	6937	5447	7588	587	228922
72	31	POL	25	6421.4	4896	7296	692	160535
76	31	POL	30	6468.8	5123	7685	665	194064
78	31	POL	23	5619.3	4442	6615	562	129243
70	32	POL	28	6288.1	4961	6907	387	176066
72	32	POL	28	6539.5	5415	7036	432	183106
76	32	POL	22	6174.1	5415	6777	342	135831
78	32	POL	27	5871.2	4896	6323	364	158523
70	33	POL	3	5242	5058	5415	145	15726
72	33	POL	2	6290.5	999999	6420	129	12581
70	34	POL	1	4118	999999	4118	0	4118
72	34	POL	3	4993	4896	5155	115	14979
70	35	POL	15	5773.7	5480	6031	151	86606

72	35	POL	15	6472.1	6063	6647	154	97081
76	35	POL	12	6171.6	6031	6355	98	74059
78	35	POL	7	5827.3	5674	5999	114	40791
70	36	POL	14	4863.6	4474	5220	208	68090
72	36	POL	18	5440.1	5091	5642	196	97922
76	36	POL	14	6227.8	5836	6517	209	87189
78	36	POL	10	6125	5836	6290	143	61250
88	41	POL	414	3441	2723	4150	295	1424586
90	41	POL	374	3351.9	2659	3794	202	1253607
88	42	POL	441	3486.1	2464	4312	296	1537381
90	42	POL	374	3315.8	2464	4085	261	1240114
76	43	POL	14	4113.1	3858	4474	188	57583
78	43	POL	11	4453.6	4247	4701	164	48990
76	44	POL	14	4506.8	4442	4734	200	63095
78	44	POL	12	4763.5	4507	4961	143	57162
76	51	POL	57	5463.7	4377	5966	319	311432
78	51	POL	49	5256.7	4247	5739	317	257576
76	52	POL	65	5318.1	4021	5836	408	345676
78	52	POL	76	5045.4	3696	5577	383	383448
88	63	ELP	7.1	3858.7	3761	4021	115	27231.3
90	63	ELP	7.6	3595.3	3469	3761	114	27244.2
88	64	ELP	7.1	3542.6	3502	3599	16	25140.6
90	64	ELP	8.1	3665.9	3534	3761	63	29529.1
88	95	POL	390	4219.5	2561	5285	584	1645595
90	95	POL	344	4201.1	2691	5512	626	1445181

88	96	POL	373	4068.4	2788	4961	422	1517512
90	96	POL	297	4005.3	2756	4701	512	1189588
70	101	POL	2014	5089.8	2269	7588	1062	10250794
72	101	POL	2025	5104.5	2496	7652	1047	10336639
76	101	POL	2108	5031.6	2302	7717	964	10606586
78	101	POL	2063	4989.1	2626	7296	850	10292559
70	102	POL	2003	5010.9	2464	6907	914	10036925
72	102	POL	1997	5077.9	2334	7069	923	10140485
76	102	POL	2008	5104.6	2399	7004	829	10250122
78	102	POL	1966	5005.6	2756	6485	748	9840931

K08 slice	volume	type	area	averg	min	max	std	count
80	1	POL	9	5316.9	5081	5697	211	47852
82	1	POL	12	5003.8	4219	5512	369	60045
84	1	POL	6	5188.5	5142	5358	166	31131
92	1	POL	8	5250.1	4773	5635	276	42001
94	1	POL	9	5399	5050	5635	180	48591
80	2	POL	11	5766.7	5604	6005	186	63434
82	2	POL	10	5499.6	5050	5912	355	54996
84	2	POL	9	5512	5173	5789	197	49608
92	2	POL	9	5474.4	4403	6066	586	49270
94	2	POL	9	5861.1	4834	6282	477	52750
80	3	POL	26	5224.2	4773	5543	229	135830
82	3	POL	29	5204	4773	5943	279	150916
84	3	POL	25	5359.2	4865	6343	378	133980
92	3	POL	21	4786.1	4280	5512	413	100509
94	3	POL	19	4782.7	4188	5420	359	90872
80	4	POL	21	4897.6	3633	5943	716	102849
82	4	POL	33	5694.9	4681	6497	562	187933
84	4	POL	33	5709.9	4927	6651	503	188426
92	4	POL	24	4973.1	4711	5450	429	119354
94	4	POL	22	5071	4834	5481	402	111561
80	5	POL	57	5728.1	4988	6282	324	326500
82	5	POL	15	5522.2	4619	6005	419	82833
84	5	POL	18	5794.2	5050	6128	291	104296
92	5	POL	25	5768.2	4804	6467	487	144204
94	5	POL	25	5859.4	5266	6343	369	146484
80	6	POL	50	6046.6	5450	6467	251	302330
82	6	POL	22	5967	4927	6651	474	131273
84	6	POL	24	6215.1	5142	6867	426	149162
92	6	POL	27	5888.4	4681	6559	488	158988
94	6	POL	27	5614.7	4557	6251	409	151597

80	7	POL	15	5013.2	4003	5728	532	75198
80	8	POL	10	6106.5	6005	6190	51	61065
80	9	POL	41	5560.1	4742	6467	501	227963
82	9	POL	47	5616.2	4003	6467	575	263962
84	9	POL	39	5451.2	4219	6159	486	212597
92	9	POL	22	4963.3	3264	6097	755	109192
94	9	POL	28	4797.1	3356	6005	722	134319
80	10	POL	48	5836	5081	6590	313	280128
82	10	POL	48	5584.6	3295	6467	700	268062
84	10	POL	46	5978	4927	6682	337	274988
92	10	POL	20	5706	4804	6097	279	114121
94	10	POL	28	5461.4	4711	5789	202	152918
80	13	POL	7	4403.4	4249	4527	98	30824
80	14	POL	9	4892.6	4711	5142	128	44033
80	15	ELP	5.8	5764.6	5358	6005	46340	33306.9
82	15	ELP	15.1	5735.9	4896	6097	209	86486.5
84	15	ELP	7.1	6018.5	5851	6097	79	43030.2
80	16	ELP	4.4	4028.6	3664	4465	46340	17655.4
82	16	ELP	7.5	4492.9	3695	5327	68	33706.7
84	16	ELP	12	5532.3	4804	5820	153	66497.4
80	17	POL	24	5441.5	5420	5728	343	130596
82	17	POL	21	5378.6	4373	5882	434	112951
84	17	POL	32	5712.2	5112	6066	291	182789
92	17	POL	24	5202.7	4927	5635	208	124864
94	17	POL	24	5066.7	4742	5512	221	121601
80	18	POL	30	5019.2	4095	5604	515	150576
82	18	POL	20	5051.6	4496	5974	643	101032
84	18	POL	28	5540.6	4834	6190	464	155137
92	18	POL	23	5178.6	4403	5820	512	119108

94	18	POL	23	5060.8	4588	5635	295	116398
80	19	ELP	45.6	4219.2	2956	4865	366	192353.8
82	19	ELP	31.5	3982.4	3171	4527	229	125615.2
84	19	ELP	17.6	4257	3849	4465	135	75103.8
80	20	ELP	45.6	3731.1	3233	4249	280	170224
82	20	ELP	20.9	3951.7	3449	4157	183	82604.8
84	20	ELP	21.6	4184.2	3449	4619	252	90317.4
80	21	POL	55	4068	3418	4619	327	223740
82	21	POL	48	3771.4	3079	4681	382	181025
84	21	POL	49	4249.4	3664	4804	290	208222
92	21	POL	48	4377.8	3110	5081	466	210132
94	21	POL	56	4564.5	3479	5142	367	255611
80	22	POL	41	4650.4	4095	4988	233	190665
82	22	POL	39	4600	3664	5173	405	179401
84	22	POL	43	4823.8	3972	5420	347	207425
92	22	POL	60	4703.6	4219	5296	262	282215
94	22	POL	59	4570.9	3941	5604	334	269686
80	23	POL	19	4829.5	4403	5666	394	91761
82	23	POL	58	4658.2	3418	5266	406	270175
84	23	POL	67	4696.1	3911	5142	252	314641
80	24	POL	19	5110.1	4280	6220	673	97091
82	24	POL	54	4869.3	3880	5635	454	262940
84	24	POL	57	5025.7	4342	5697	405	286467
80	25	POL	15	5766.7	5697	5974	180	86501
80	26	POL	10	4800.5	4496	5204	204	48005
80	29	POL	52	5136	3972	6559	681	267070
82	29	POL	72	5268.7	4188	6190	508	379343
84	29	POL	61	5476.7	4157	6528	605	334077
92	29	POL	55	5099.9	3880	5820	458	280494

94	29	POL	49	4987.8	4034	5604	373	244401
80	30	POL	55	5040	4003	5851	445	277199
82	30	POL	82	5460.1	4465	6528	436	447732
84	30	POL	94	5491.4	4557	6313	353	516192
92	30	POL	67	5644.4	4681	6251	380	378175
94	30	POL	67	5477.5	4434	6343	493	366993
80	31	POL	17	5771.1	5266	6128	291	98108
82	31	POL	30	5627	4557	6220	515	168810
84	31	POL	36	5820	4557	6313	478	209519
92	31	POL	27	5250.8	4403	5943	511	141771
94	31	POL	23	5263	4342	6036	565	121049
80	32	POL	12	6489.8	5820	6867	302	77878
82	32	POL	31	6264	5142	6898	459	194183
84	32	POL	32	6265.5	5450	6775	360	200496
92	32	POL	27	6137.1	5266	6775	393	165702
94	32	POL	26	6295	5943	6713	201	163669
80	33	POL	9	4547.2	4219	4865	203	40925
82	33	POL	4	5127	5050	5235	70	20508
84	33	POL	5	5549	5358	5666	103	27745
80	34	POL	5	4495.8	4249	4773	203	22479
82	34	POL	2	4911	4834	4988	77	9822
84	34	POL	2	5235	5112	5358	123	10470
80	35	POL	18	4887.4	4280	5112	193	87973
82	35	POL	14	5206.1	4650	5389	206	72886
84	35	POL	15	5399.2	4773	5635	234	80988
92	35	POL	10	6331.1	6220	6436	99	63311
94	35	POL	17	6254.7	5728	6436	173	106330
80	36	POL	14	4469.4	4342	4650	120	62571
82	36	POL	14	4922.4	4711	5050	95	68914
84	36	POL	16	5637.1	5358	5912	175	90193
92	36	POL	11	5820	5635	6036	229	64020

94	36	POL	17	5832.7	4958	6128	341	99156
122	41	POL	453	3078.1	1909	3787	370	1394395
124	41	POL	447	3015.2	1970	3880	371	1347778
122	42	POL	543	3477.8	2248	4157	318	1888454
124	42	POL	543	3263.8	2248	4065	364	1772224
92	43	POL	13	3950.8	3572	4311	226	51361
94	43	POL	25	3719.6	3295	4034	202	92990
92	44	POL	14	4124.1	3787	4311	151	57737
94	44	POL	22	4109.5	3941	4311	165	90408
92	51	POL	62	4995.4	3941	5974	509	309716
94	51	POL	64	4886.5	3818	6036	513	312736
92	52	POL	83	4961.7	3695	5820	514	411821
94	52	POL	70	4955.1	4034	5851	472	346854
122	63	ELP	7.4	3056.5	2925	3171	63	22513.9
124	63	ELP	7.2	3202.6	3048	3387	77	23184.4
122	64	ELP	7.1	3309.8	3141	3387	31	23626.1
124	64	ELP	5	3077.5	2987	3233	46340	15295.1
124	95	POL	349	3916	2586	5050	542	1366680
124	96	POL	448	3777.4	2710	4681	439	1692297
80	101	POL	2417	4612.1	2556	6713	953	11147493
82	101	POL	2405	4687.3	2340	6713	931	11273045
84	101	POL	2410	4714.3	2001	6713	936	11361441
92	101	POL	2342	4695.6	2248	6713	907	10997050
94	101	POL	2263	4665.9	2278	6621	868	10558887
80	102	POL	2312	4789.8	2094	7083	971	11074090
82	102	POL	2300	4893	2371	7083	950	11253836

84	102	POL	2408	4928.2	2340	7144	955	11867068
92	102	POL	2513	4776.7	2217	6959	934	12003746
94	102	POL	2536	4666.5	2124	6867	898	11834311

k49

slice	volume	type	area	averg	min	max	std	count
66	1	POL	3	5312	999999	5450	112	15936
68	1	POL	3	5392.7	999999	5485	71	16178
72	1	POL	7	5943	5416	6485	354	41601
74	1	POL	8	6218	5761	6451	222	49744
66	2	POL	7	6307.9	5899	6451	180	44155
68	2	POL	7	6465.4	6313	6589	100	45258
72	2	POL	14	5667.2	5002	6416	475	79341
74	2	POL	8	6166	5692	6485	256	49328
66	3	POL	25	5570.3	5105	6382	436	139258
68	3	POL	25	5625.5	5071	6313	462	140638
72	3	POL	14	5193.9	4829	6106	655	72715
74	3	POL	17	4606.1	3622	5485	718	78303
66	4	POL	33	6229.1	5554	7175	592	205560
68	4	POL	33	6140.3	5381	7072	589	202629
72	4	POL	22	5014.3	3829	6140	686	110314
74	4	POL	15	4274.9	3415	5450	536	64124
66	5	POL	16	5978.6	5554	6313	232	95658
68	5	POL	16	5972.1	5623	6278	211	95553
72	5	POL	21	4637	3242	5450	679	97376
74	5	POL	18	4181.4	3208	4864	496	75266
66	6	POL	21	6708.6	5795	7244	434	140880
68	6	POL	21	6572.3	5554	7072	424	138019
72	6	POL	25	5000.4	3725	6002	654	125009
74	6	POL	22	4722.6	3587	5933	683	103897
66	9	POL	33	5377.1	3518	6416	683	177445
68	9	POL	33	5273.5	3760	6175	553	174027
72	9	POL	17	5367	5140	5588	126	91239

74	9	POL	19	5611.8	4243	6278	477	106625
66	10	POL	40	6927.8	6244	7555	289	277110
68	10	POL	40	6553.5	5899	7244	325	262138
72	10	POL	18	5745.4	5209	6589	325	103418
74	10	POL	14	5654.7	5036	6485	381	79166
66	15	ELP	7.1	5863.5	5347	6313	253	41826.1
68	15	ELP	7.1	6087.5	5795	6278	120	43423.9
66	16	ELP	7.5	6419.4	6002	6727	320	47843.6
68	16	ELP	7.5	6305.3	6002	6485	137	46993.2
66	17	POL	31	6270.5	5761	6968	361	194385
68	17	POL	31	6083.5	5692	6658	283	188589
72	17	POL	23	5441.3	4760	5899	314	125150
74	17	POL	27	4831.8	4139	5450	372	130458
66	18	POL	27	6736.9	6037	7244	345	181897
68	18	POL	27	6559.4	5933	7003	340	177104
72	18	POL	20	6141.9	5381	6865	479	122837
74	18	POL	15	5480.1	4898	5864	349	82202
66	19	ELP	17.1	5426.6	4898	5864	226	92673.4
68	19	ELP	17.1	5429.7	5036	5795	202	92726.3
66	20	ELP	20.4	5485.2	4277	5933	389	111849.4
68	20	ELP	20.4	5430.8	4657	5726	209	110740.6
66	21	POL	42	5236.7	3242	6796	903	219941
68	21	POL	42	5690.9	4036	6899	710	239019
72	21	POL	40	5495.1	3967	6554	595	219803
74	21	POL	34	5056.6	3484	6140	645	171924
66	22	POL	38	5513.8	4346	6175	419	209524

68	22	POL	38	5663.6	4829	6278	288	215216
72	22	POL	47	5415.7	4898	6209	281	254540
74	22	POL	43	5353.2	4795	5830	288	230186
66	23	POL	55	6985.7	3932	7934	977	384216
68	23	POL	55	7091.8	4726	8003	711	390049
66	24	POL	53	7213.7	5312	8348	865	382325
68	24	POL	53	7293.8	5830	8210	657	386569
66	29	POL	63	4810.6	3484	6416	737	303069
68	29	POL	63	4983.1	3794	6382	648	313937
72	29	POL	41	5445.2	4243	6140	471	223253
74	29	POL	57	4733.7	3311	5692	609	269820
66	30	POL	88	6334.7	4553	7141	637	557457
68	30	POL	88	6365.7	4829	7244	625	560181
72	30	POL	52	5813.8	4553	7037	605	302318
74	30	POL	57	5789.8	5071	6589	395	330021
66	31	POL	34	5942.4	4933	7486	653	202042
68	31	POL	34	5666.4	4967	7175	544	192658
72	31	POL	23	4994.2	3967	6071	483	114866
74	31	POL	20	4611.9	3760	5381	430	92238
66	32	POL	28	7233.2	6485	7658	352	202529
68	32	POL	28	7232	6485	7900	435	202495
72	32	POL	15	5546.9	4588	6278	481	83204
74	32	POL	21	5580.1	4519	6589	519	117182
66	33	POL	4	6054	5864	6244	147	24216
68	33	POL	4	6709.5	6554	6865	115	26838
66	34	POL	5	5753.8	5416	6002	215	28769
68	34	POL	5	6140.2	5933	6382	176	30701

66	35	POL	15	6531.1	5761	6830	327	97967
68	35	POL	15	6963.6	6278	7210	254	104454
72	35	POL	13	6065.8	5933	6209	139	78856
74	35	POL	6	5806.8	5657	5968	122	34841
66	36	POL	16	6271.8	4967	6934	616	100348
68	36	POL	16	6832.4	5726	7451	546	109319
72	36	POL	12	6373.2	5830	6796	307	76478
74	36	POL	8	5635.8	5347	5830	155	45086
86	41	POL	471	3841.6	2621	4553	416	1809413
88	41	POL	419	3671.6	2104	4519	381	1538394
86	42	POL	397	3985	3035	4657	334	1582049
88	42	POL	339	3757.1	2966	4346	262	1273653
72	43	POL	27	5179.4	4312	5623	327	139844
74	43	POL	20	4979.4	4691	5209	172	99587
72	44	POL	30	4933.9	4450	5381	302	148018
74	44	POL	16	5131.1	5036	5278	151	82098
72	51	POL	56	6671.9	5588	7762	460	373626
74	51	POL	49	6719	6209	7313	263	329232
72	52	POL	57	6801.8	5140	7727	635	387702
74	52	POL	71	6578	4450	7486	710	467040
86	63	ELP	7.6	4534.2	4415	4622	0	34498.2
88	63	ELP	7.3	4169.3	4036	4243	51	30643.4
86	64	ELP	9.7	4352.8	4070	4553	106	42060.4
88	64	ELP	8.2	4108.6	3829	4312	73	33531.7
86	95	POL	300	3916.9	2035	4967	633	1175082
88	95	POL	206	3624.2	2138	4381	598	746592

86	96	POL	282	3986.8	2656	5002	577	1124282
88	96	POL	180	3630.7	2173	4484	595	653532
66	101	POL	2015	5364.2	2069	8107	1293	10808920
68	101	POL	2015	5376.6	2414	8107	1192	10833795
72	101	POL	2016	5224.1	1759	7831	973	10531722
74	101	POL	2048	5102.2	1172	7313	1009	10449219
66	102	POL	2026	5701.7	2690	8348	1247	11551568
68	102	POL	2026	5634.9	2759	8210	1167	11416335
72	102	POL	2042	5378.2	2207	7762	949	10982247

Appendix 5

On Study Form

UPN	Dx_Crit	DxCrit1n	DxCrit2n	Prog.Dx	ANC.gt	WBC.gt	Plt.gt	Fem	Strata	AddTumor	Agent	CnstmCtr	ConsentS	DOB	Date_On	Gender	Race	Comm.On
101	YES	1	4	YES	YES	YES	YES	N/A	Optic	Plexiform	Etoposide	CHOP	Yes	11/27/88	01/21/94	Female	White, not	cervical neck plexif
102	YES	6	4	YES	YES	YES	YES	N/A	Optic	No choice	13-Cis	Duke	Yes	5/3/67	05/04/94	Male	White, not	
103	YES	1	4	YES	YES	YES	YES	N/A	Optic	Plexiform	Interferon	CHOP	Yes	8/6/88	06/16/94	Male	White, not	vision stable OPT s
105	YES	1	4	YES	YES	YES	YES	N/A	Optic	No choice	Interferon	CHOP	Yes	04/10/72	07/10/95	Male	White, not	off study due to leth
106	YES	1	4	YES	YES	YES	YES	N/A	Optic	No choice	Etoposide	Mt. Sinai	Yes	12/03/90	8/15/94	Male	-1	
107	YES	1	4	YES	YES	YES	YES	N/A	Optic	Plexiform	Interferon	St. Louis	Yes	4/20/93	02/21/95	Female	White, not	allergic reaction no
108	YES	1	4	YES	YES	YES	YES	N/A	Optic	No choice	Etoposide	CHOP	Yes	07/08/74	05/18/95	Male	White, not	had completed cycl
109	YES	4	1	YES	YES	YES	YES	N/A	Optic	No choice	13-Cis	CHOP	Yes	3/4/92	07/26/95	Female	White, not	
110	YES	1	4	YES	YES	YES	YES	N/A	Optic	No choice	Etoposide	CHOP	Yes	10/11/93	08/25/95	Female	White, not	cycle 7 interupted d
111	YES	1	4	YES	YES	YES	YES	N/A	Optic	No choice	Etoposide	Florida	Yes	4/18/86	10/23/95	Male	White, not	
112	YES	7	4	YES	YES	YES	YES	N/A	Optic	No choice	Etoposide	CHOP	Yes	1/21/94	11/16/95	Female	White, not	radiographic
113	YES	4	3	YES	YES	YES	YES	N/A	Optic	Plexiform	Etoposide	CHOP	Yes	3/4/92	4/22/96	Female	White, not	
114	YES	1	4	YES	YES	YES	YES	N/A	Optic	No choice	Etoposide	Pittsburg	Yes	03/07/90	09/13/96	Male	White, not	
201	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	CHOP	Yes	09/21/82	11/28/93	Female	White, not	neck tumor measur
202	YES	1	7	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	CHOP	Yes	12/31/82	11/11/93	Male	White, not	
203	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	D/C	Yes	04/19/93	08/01/93	Female	Hispanic	Parents felt tumor w
204	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Riley	Yes	11/28/82	12/15/93	Male	White, not	monitoring heart ra
205	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	CHOP	Yes	02/04/88	11/20/94	Male	White, not	
206	YES	1	2	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	CHOP	Yes	10/10/86	01/20/94	Female	White, not	Pt hated injections '
207	YES	7	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Riley	Yes	8/28/82	2/22/94	Female	White, not	leg tumor pain relie
208	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	D/C	Yes	12/16/86	3/17/94	Female	White, not	Parents withdrew p
209	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Riley	Yes	07/09/91	3/10/94	Male	White, not	
210	YES	7	1	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Cleveland	Yes	09/10/82	01/16/94	Female	White, not	last MRI showed
211	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	D/C	Yes	10/16/87	4/6/94	Male	Black, not	
212	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Cleveland	Yes	04/03/83	04/26/94	Female	White, not	patient off she refus
213	YES	3	1	YES	YES	YES	YES	N/A	Plexiform	Optic	Interferon	Cleveland	Yes	1/23/87	4/26/94	Female	White, not	measurement large
214	YES	2	1	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Duke	Yes	5/8/33	05/04/94	Female	White, not	off study due to dry
215	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Duke	Yes	09/09/90	05/10/94	Male	White, not	no change in PN M
216	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Duke	Yes	3/22/82	05/20/94	Female	White, not	
217	YES	1	3	YES	YES	YES	YES	YES	Plexiform	No choice	13-Cis	Duke	Yes	04/03/69	11/14/94	Female	White, not	off meds because o
218	YES	1	3	YES	YES	YES	YES	YES	Plexiform	No choice	Interferon	D/C	Yes	08/05/79	06/11/94	Female	White, not	family was having
219	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Riley	Yes	01/25/90	05/24/94	Male	White, not	
220	YES	3	1	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Duke	Yes	12/22/73	05/25/94	Male	White, not	
221	YES	1	3	YES	YES	YES	YES	YES	Plexiform	No choice	13-Cis	Duke	Yes	4/25/77	5/31/94	Female	White, not	No change
222	YES	3	1	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Duke	Yes	3/18/56	5/31/94	Male	White, not	
223	YES	3	1	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Cleveland	Yes	08/17/62	06/01/94	Male	White, not	Refused to return fo
224	YES	3	1	YES	YES	YES	YES	YES	Plexiform	No choice	13-Cis	Cleveland	Yes	12/7/47	6/21/94	Female	White, not	Withdrew from stud
225	YES	7	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	D/C	Yes	2/6/77	08/17/94	Male	Black, not	Expired, unrelated t
226	YES	3	7	YES	YES	YES	YES	YES	Plexiform	No choice	Interferon	D/C	Yes	09/29/78	08/19/94	Female	Black, not	
227	YES	3	2	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	D/C	Yes	5/22/91	09/06/94	Male	White, not	
228	YES	1	3	YES	YES	YES	YES	YES	Plexiform	No choice	13-Cis	Boston	Yes	7/11/84	11/22/94	Female	Hispanic	

On Study Form

UPN	Dx_Crit	DxCrit1n	DxCrit2n	Prog.Dx	ANC.gt	WBC.gt	Plt.gt	Fem	Strata	AddTumor	Agent	CnstmCtr	ConsentS	DOB	Date_On	Gender	Race	Comm.On
229	YES	1	3	YES	YES	YES	YES	YES	Plexiform	No choice	13-Cis	D/C	Yes	5/17/83	12/8/94	Female	White, not	
230	YES	1	2	YES	YES	YES	YES	YES	Plexiform	No choice	Interferon	Boston	Yes	03/31/69	08/12/94	Female	White, not	started 8/12/94 stop
231	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Pittsburg	Yes	12/31/75	03/10/95	Male	White, not	
232	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Pittsburg	Yes	09/25/82	05/01/95	Male	White, not	
233	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Duke	Yes	3/14/79	03/31/95	Male	Black, not	
234	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Duke	Yes	11/22/91	04/18/95	Female	White, not	
235	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Pittsburg	Yes	10/26/87	04/21/95	Female	White, not	left neck
236	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	CHOP	Yes	02/02/88	04/27/95	Male	Black, not	
237	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Duke	Yes	1/1/92	05/08/95	Female	White, not	
238	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Riley	Yes	01/30/84	05/08/95	Male	White, not	
239	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Duke	Yes	12/14/39	05/09/95	Male	White, not	
240	YES	3	1	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Duke	Yes	2/8/81	05/30/95	Female	White, not	
241	YES	1	3	YES	YES	YES	YES	YES	Plexiform	No choice	Interferon	CHOP	Yes	09/29/67	06/13/95	Female	White, not	
242	YES	3	4	YES	YES	YES	YES	N/A	Plexiform	Optic	13-Cis	D/C	Yes	11/23/81	07/19/94	Male	White, not	was also entered on
243	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	CHOP	Yes	12/26/82	07/06/95	Female	White, not	
244	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	Optic	Interferon	Florida	Yes	11/8/90	07/31/95	Male	White, not	OPT is old and has
245	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Duke	Yes	06/14/67	07/12/95	Male	Black, not	
246	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	Optic	Interferon	Florida	Yes	05/15/87	07/26/95	Female	White, not	
247	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	CHOP	Yes	03/28/94	07/27/95	Female	White, not	
248	YES	1	3	YES	YES	YES	YES	YES	Plexiform	No choice	13-Cis	Florida	Yes	02/08/94	08/14/95	Female	Black, not	patient started drug
249	YES	1	3	YES	YES	YES	YES	YES	Plexiform	No choice	Interferon	CHOP	Yes	10/26/58	07/31/95	Female	White, not	
250	YES	1	5	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Pittsburg	Yes	08/05/72	09/15/95	Male	White, not	
251	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Riley	Yes	10/13/93	10/23/95	Female	White, not	Entry criteria progre
252	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Florida	Yes	1/13/90	10/31/95	Male	White, not	
253	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	Optic	Interferon	St. Louis	Yes	07/19/90	12/28/95	Male	White, not	
254	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	Riley	Yes	10/26/77	02/06/96	Female	White, not	lesions painful, new
255	YES	1	3	YES	YES	YES	YES	YES	Plexiform	No choice	13-Cis	Duke	Yes	4/7/91	4/19/96	Female	Black, not	MRI abd large since
256	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	Optic	13-Cis	Duke	Yes	04/14/96	05/23/96	Female	White, not	OPT stable
257	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Florida	Yes		08/19/96	Male	Black, not	
258	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Duke	Yes	12/25/84	09/13/96	Female	Black, not	
259	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	Interferon	D/C	Yes	06/12/90	10/25/96	Female	Black, not	
901	YES	1	3	YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	CHOP	Yes		12/21/93	Male	Asian or	patient entered on s
902	YES			YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	Duke	Yes		5/20/94	Female		
903	YES			YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	D/C	Yes		8/3/94	Male		
904	YES			YES	YES	YES	YES	N/A	Plexiform	No choice	13-Cis	D/C	Yes		8/3/94	Male		

BSA and Dose calculations

UPN	Agent	AgentNum	Hgtcm	Wgtkg	BSA	BSArpt	DoseCalc	DoseRpt
101	Etoposide	3	114.3	22.4	.8362	0.84	41.81	50
102	13-Cis Retinoic	1	171.5	69.7	1.8179	1.8	109.074	108
103	Interferon	2	102	19.1	.7195	0.73	2.878	2.92
105	Interferon	2	161	61	1.6409	1.6	6.5636	6.4
106	Etoposide	3	-1	-1	?	-1		-1
107	Interferon	2	80.2	10.15	.462	.47	1.848	1.88
108	Etoposide	3	172	68.8	1.8118	1.8	90.59	100
109	13-Cis Retinoic	1	93	19	.6714	0.7	40.284	40
110	Etoposide	3	83.5	11.4	.4998	0.5	24.99	25
111	Etoposide	3	128.6	27.2	.9891	0.985	49.455	50
112	Etoposide	3	86	11.6	.5144	0.50	25.72	25
113	Etoposide	3	101.6	23	.7764	0.8	38.82	50
114	Etoposide	3	124	22.2	.8837	87	44.185	50
201	13-Cis Retinoic	1	146.5	42	1.3076	1.3	78.456	80
202	Interferon	2	139	35.1	1.1663	1.16	4.6652	4.64
203	13-Cis Retinoic	1	67	6.25	.33	0.34	19.8	20
204	Interferon	2	138	39	1.2133	1.2	4.8532	4.8
205	13-Cis Retinoic	1	112	19.5	.7768	0.8	46.608	80
206	Interferon	2	119	22	.8544	.85	3.4176	3.4
207	Interferon	2	136.4	26	1.0127	1.0	4.0508	4.5
208	13-Cis Retinoic	1	123.5	23.7	.9059	1.0	54.354	60
209	13-Cis Retinoic	1	86.6	17.8	.6201	0.53	37.206	30
210	Interferon	2	162	46.3	1.466	1.7	5.864	5.8
211	13-Cis Retinoic	1	121	22	.8648	.86	51.888	50
212	Interferon	2	129	25.1	.9581	0.9	3.8324	3.6
213	Interferon	2	120	22.5	.8679	0.9	3.4716	3.6
214	13-Cis Retinoic	1	145	59.1	1.5007	1.54	90.042	90
215	Interferon	2	92.8	13.5	.5797	0.59	2.3188	2.36
216	13-Cis Retinoic	1	128.7	26.4	.9772	0.94	58.632	56.4
217	13-Cis Retinoic	1	159.1	53.1	1.5337	1.54	92.022	90
218	Interferon	2	167.5	62.655	1.708	1.7	6.832	6.8
219	13-Cis Retinoic	1	121.7	27	.9474	1.0	56.844	60
220	Interferon	2	163.8	50.1	1.5282	1.54	6.1128	6.16
221	13-Cis Retinoic	1	148.2	47.2	1.3857	1.39	83.142	90
222	Interferon	2	172	88	2.0115	2.0	8.046	8
223	Interferon	2	168	68	1.7723	1.78	7.0892	7.12
224	13-Cis Retinoic	1	158	52.2	1.515	1.51	90.9	90
225	13-Cis Retinoic	1	181	100	2.2039	2.2	132.234	130

BSA and Dose calculations

UPN	Agent	AgentNum	Hgtcm	Wgtkg	BSA	BSArpt	DoseCalc	DoseRpt
226	Interferon	2	166	92.2	1.9997	2.0	7.9988	8
227	Interferon	2	89	12.3	.5406	0.57	2.1624	2.28
228	13-Cis Retinoic	1	139.7	35.6	1.1776	1.18	70.656	70.8
229	13-Cis Retinoic	1	135	27	1.0214	0.94	61.284	60
230	Interferon	2	161	76.8	1.8096	1.85	7.2384	7.4
231	13-Cis Retinoic	1	186	65.6	1.8791	1.8	112.746	180
232	Interferon	2	155	44.4	1.3947	1.4	5.5788	5.6
233	Interferon	2	156.7	64.4	1.6465	1.67	6.586	6.68
234	Interferon	2	96.1	13.5	.5946	.6	2.3784	2.4
235	13-Cis Retinoic	1	121	23.1	.8829	0.88	52.974	50
236	13-Cis Retinoic	1	119.8	20	.8245	0.82	49.47	50
237	Interferon	2	98.7	18.2	.6883	0.70	2.7532	1.2
238	Interferon	2	132.4	30.3	1.0577	1.05	4.2308	1.0
239	13-Cis Retinoic	1	179.2	84.8	2.0399	2.0	122.394	120
240	13-Cis Retinoic	1	148.6	38.8	1.2774	1.28	76.644	80
241	Interferon	2	155	68	1.6718	1.67	6.6872	1.67
242	13-Cis Retinoic	1	137.5	29.5	1.0748	1.0	64.488	60
243	13-Cis Retinoic	1	166	47.6	1.5098	1.45	90.588	90
244	Interferon	2	95.9	14.8	.6174	0.62	2.4696	0.6
245	Interferon	2	182.88	64.13	1.8384	1.84	7.3536	1.8
246	Interferon	2	122	29.5	.9855	-1.0	3.942	4.0
247	13-Cis Retinoic	1	80	9.2	.4423	0.45	26.538	30
248	13-Cis Retinoic	1	103.3	15.2	.659	0.66	39.54	40
249	Interferon	2	159	69.9	1.723	1.75	6.892	1.8
250	13-Cis Retinoic	1	157	52.4	1.5105	1.5	90.63	90
251	Interferon	2	83.3	11.4	.4989	0.5	1.9956	2.0
252	13-Cis Retinoic	1	108.4	17.8	.7298	0.7	43.788	40
253	Interferon	2	115	35	1.0153	1.0	4.0612	4.5
254	Interferon	2	152.9	46.9	1.4135	1.4	5.654	5.6
255	13-Cis Retinoic	1	104.8	14.8	.6584	0.66	39.504	40
256	13-Cis Retinoic	1	94.8	14.3	.6034	0.61	36.204	40
257	13-Cis Retinoic	1						
258	13-Cis Retinoic	1	156	44.2	1.3986	1.38	83.916	80
259	Interferon	2	109.5	16.5	.7118	0.7	2.8472	2.8
901	13-Cis Retinoic	1						
902	13-Cis Retinoic	1						
903	13-Cis Retinoic	1						
904	13-Cis Retinoic	1						

Off Study Form - Laboratory

UPN	Date Off	CycleOff	WBC	Na	BUN	ALT	Amy	UA	Hb	K	Creat	AST	Chol	Alb	Plt	Cl	Glu	T.Bili	Trig	T.Pro	CO2	D.Bili	ANC.f
101	12/23/94	13	4.42	135	10	25	101	normal	9.8	4.1	0.5	35	181	4.2	374	102	83	0.6	66	7.3	-2	-2	
102	08/18/95	13	6.0	141	13	18	47	normal	14.8	5.1	0.9	21	168	4.2	323	105	124	0.7	105	7.2	24		
103	6/15/95	13	8.4	138	9	33	-2	normal	11.7	4.2	0.3	37	175	3.6	362	104	87	0.3	121	6.6	-2	-2	
105	9/15/95	3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3		-3
106																							
107	6/14/95	4	13.4	-2	-2	-2	-2	-2	12.4	-2	-2	-2	-2	-2	298	-2	-2	-2	-2	-2	-2		
108	8/22/95	3	7.8	-2	-2	-2	-2	2	14.3	-2	-2	-2	-2	-2	346	-2	-2	-2	-2	-2	-2	-2	5200
109	10/31/95	4	6.8	143	9	27	47	-2	11.8	4.3	0.4	28	229	4.4	357	106	67	0.2	129	7.2	-3		1095
110	09/05/96	13	4.5	144	9	20	-3	normal	11.5	4.5	0.3	34	112	4.1	279	109	69	0.4	150	6.9	-3		1406
111																							
112																							
113	07/08/96	3	6.8	143	14	28	-3	normal	11.8	4.3	0.4	38	129	4.4	357	108	61	0.3	237	7.1	-2		3175
114																							
201	11/30/94	12	7.1	140	13.3	13	32	normal	13.3	4.0	0.4	17	164	3.8	239	106	92	0.4	125	-2	26	-2	
202	11/18/94	12	5.0	140	15	30	-2	normal	12.1	4.5	0.6	44	152	4.5	199	103	67	0.4	92	7.8	-2	-2	
203	6/27/94	6	18.3	140	8	23	-2	-2	11.5	4.0	0.3	43	-2	4.2	303	102	74	0.4	122	7.2	24	0.2	
204	1/5/95	12	5.3	142	13	58	-3	-2	12.2	4.0	0.9	39	-3	4.3	247	104	88	0.6	-3	7.6	27	-2	-2
205	11/30/95	12	6.1	138	4.2	12	65	normal	12.3	4.2	0.5	22	200	-3	410	109	78	0.5	250	1	-3		3660
206	6/7/94	6	9.5	138	10	45	-2	normal	11.5	4.1	0.5	37	154	4.2	272	99	80	0.2	107	7.7	-2	-2	
207	9/6/94	8	7.1	140	8	15	-3	normal	14	3.9	0.5	26	161	4.8	287	101	84	0.5	-3	8.2	21	-2	
208	8/19/94	5	7.3	139	13	13	-2	normal	13.1	4.4	0.5	24	149	4.8	402	103	88	0.2	14	7.7	24	-2	
209	3/22/95	13	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1	-2
210	3/20/95	13	2.05	136	10	-2	-3	-2	12.6	4.2	0.9	71	-3	4.4	124	106	93	0.4	-3	7.2	25	-2	1130
211	4/13/95	13	5.0	142	6	24	76	normal	12.1	3.6	0.6	25	213	4.5	345	105	93	0.4	101	7.5	21		
212	2/7/95	10	5.15	140	15	18	-3	-2	11.6	4.1	0.7	25	-3	4.9	263	105	96	0.5	-3	7.8	23	-2	
213	4/21/95	12	4.18	139	20	24	-2	-2	10.6	4.1	0.5	26	123	4.4	241	110	88	0.2	23	7.3	24	0.0	
214	1/4/95	10	9.2	140	9	21	33	-2	13.9	4.3	0.9	24	252	4.1	349	98	98	0.2	321	7.8	29	-2	
215	5/8/95	12	9.9	139	5	191	-2	normal	11.6	4.5	0.3	256	-2	4.4	315	105	81	0.4	-2	7.9	22	-2	
216	6/12/95	12	5.1	144	14	8	-2	normal	13.5	4.3	0.6	23	182	4.5	265	103	100	0.5	112	7.3	-2	0.16	
217	1/6/95	2	11.2	-2	-2	-2	-2	-2	12.7	-2	-2	-2	-2	-2	251	-2	-2	-2	-2	-2	-2	-2	
218	11/26/94	4	4.4	142	15	54	-2	normal	12.5	3.8	0.9	53	165	4.5	136	105	84	0.6	90	6.6	25	0.1	
219	06/14/95	13	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3		-3
220	06/12/95	12	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-1	
221	6/9/95	13	6.34	142	7	15	56	normal	15.2	4.2	1.0	20	253	4.4	347	102	83	0.6	122	7.4	-2	-2	
222	06/09/95	12	5.0	138	10	53	73	normal	13.7	4.2	1.0	36	178	4.2	154	101	90	0.5	134	7.6	26	-2	
223	07/26/94	3	6.4	-2	-2	-2	-2	-2	16.2	-2	-2	-2	-2	-2	225	-2	-2	-2	-2	-2	-2	-2	
224	10/21/94	5	4.7	138	8	13	-2	-2	13.0	4.1	0.8	13	183	3.6	202	108	84	0.6	176	6	25	-2	
225	1/13/95	6	6.6	144	11	35	64	normal	13.6	3.6	0.9	51	149	4.4	340	104	-2	0.6	103	7.7	27	-2	
226	01/10/95	4	7.1	140	14	34	-2	normal	12.8	4	0.7	21	203	4.2	393	104	-2	0.4	166	7.3	24		
227	12/5/94	4	8.1	-2	-2	-2	-2	-2	11.1	-2	-2	-2	-2	-2	136	-2	-2	-2	-2	-2	-2	-2	
228	06/05/95	7	5.75	138	12	9	46	normal	12.2	3.8	0.5	20	184	3.6	207	104	89	0.4	206	7.1	25	0.1	
229	1/10/95	3	7.6	143	10	28	-2	-2	13	4.4	0.7	28	190	4.1	357	105	85	106	106	7	23	-2	

Off Study Form - Laboratory

UPN	Date Off	CycleOff	WBC	Na	BUN	ALT	Amy	UA	Hb	K	Creat	AST	Chol	Alb	Plt	Cl	Glu	T.Bili	Trig	T.Pro	CO2	D.Bili	ANC.f
230	08/10/95	13	5.45	140	9	16	39	normal	13.2	3.9	0.7	12	145	3.9	230	104	94	0.6	200	7.7	28	0.1	
231	03/05/96	12	9.4	139	11	71	-2	normal	16	4.4	0.8	17	-2	-2	346	103	90	0.6	-2	-2	-2		6702
232	11/13/95	7	5.2	140	7	25	-3	normal	13.2	5.3	0.6	23	-3	-2	295	104	84	0.2	-3	-2	-2		2454
233	04/01/96	13	6.1	140	9	119	-3	normal	15.0	4.4	0.8	147	-3	4.3	325	104	69	1.0	-3	7.8	24		2562
234	06/30/95		-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	
235	04/04/96	12	5.8	-2	-2	-2	-2	normal	14.4	-2	-2	-2	-2	-2	310	-2	-2	-2	-2	-2	-2		-2
236	04/18/96	13	8.2	140	8	17	35	normal	10.2	3.8	0.4	42	178	4.5	417	100	81	0.4	90	7.9	-3		3419
237	05/03/96	13	10.2	140	10	12	-3	normal	13.5	5.2	0.3	32	113	4.3	428	105	83	0.5	70	6.7	23		-2
238	1/12/96	10	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3	-3		-3
239	6/16/95	2	4.5	140	7	28	-2	-2	167	5.1	.9	36	231	-2	257	105	-2	-2	-2	-2	30	-2	
240	05/16/96	12	5.7	142	12	9	35	normal	13.7	3.9	0.6	15	-3	-3	312	103	103	0.7	109	-3	29		3431
241	11/8/95	5	3.9	142	10	-2	-2	-2	9.3	3.8	1.2	-2	-2	-2	155	111	74				17		
242	12/20/94	4	9.4	139	8	19	75	normal	6.1	3.8	0.5	63	-2	4.3	368	103	141	06	125	7.3	25	0.3	
243	03/01/96	9	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2		-2
244	07/22/96	12	4.4	143	15	83	-3	normal	11.6	4.3	0.3	75	-3	4.6	215	111	65	0.4	-3	7.0	-2		1584
245	08/09/96	12	3.2	143	14	50	120	normal	15.1	4.2	1.1	40	-2	4.8	163	-2	66	0.9	126	8.0	28		1354
246	06/24/96	12	3.7	-2	-2	18	-3	-2	12.4	-2	-2	24	-2	-2	235	-2	-2	0.3	-2	-2	-2		1843
247	08/26/95	2	-2	-2	-2	--2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2		-2	-2
248	07/15/96	6	7.3	140	9	9	33	normal	12.3	4.2	0.4	23	-2	4.1	321	109	70	0.2	-2	6.5	22		2555
249	08/15/96	12	3.29	138	13	15	-3	-3	14.0	4.3	0.6	18	204	4.3	251	105	86	0.4	71	7.2	-2		
250	3/28/96	7	6.7	142	13	-2	-2	normal	15.1	4.0	0.9	-2	-2	-2	256	104	90	-2	-2	-2	24.8		3685
251	10/11/96	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
252	11/15/96	12	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1		-1
253																							
254	04/12/96	3	3.1	-2	-2	-2	-2	-2	11.8	-2	-2	-2	-2	-2	83	-2	-2	-2	-2	-2	-2		2100
255	10/23/96	6	7.5						12.3						373								3300
256																							
257																							
258	11/14/96	2																					
259																							
901	12/21/93	0																					
902	5/20/94	0																					
903	8/3/94	0																					
904	8/3/94	0																					